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### KANSAS STATE AGRICULTURAL COLLEGE

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Address A. A. STEWART, Manhattan, Kas.

### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second the degree in which he makes it his own. Hence the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thorough ness of the instruction therein. The State Agricult ness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

### FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

## FARMER'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology. 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Practical Geometry. 4. Horticul, Landscape Gardening. 5. Organic, Analytical Chemistry. 6. Practical Surveying.	1. Physiology. 2. Rhetoric. 3. Algebra. 4. Practical Agricul. (elementary). 5. Physics. 6. Industrial Drawing.	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arithmetic, Book-keeping. 6. U.S. History, Industrial Drawing.

### WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

## WOMAN'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Farm Economy, Special Hygien 2. Geology, Mineralogy. 3. Polit'l Economy, Practical Lat 4. Zoology. 5. Phys'c'l Geography, Meteorolog 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Industrial Drawing. 4. Horticul., Landscape Gardening. 5. Organic, Household Chemistry. 6. Household Economy.	<ol> <li>Physiology.</li> <li>Rhetoric.</li> <li>Algebra.</li> <li>English Literature.</li> <li>Physics.</li> <li>Industrial Drawing.</li> </ol>	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arith., Book-keeping. 6. U.S. History, Industrial Drawing

### MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

### A Cheap Trip.

Many a man who never thought of going to Europe before, is thinking of it now; and as newspaper men are supposed to know everything - though it must be admitted they do not - they are in receipt of many inquiries as to the expense of a trip; how

to go and where to go, and so on.

Mr. Geo. W. Smalley, the London correspondent of the New York Tribune, is perhaps as well qualified as any man can be, to give advice and instruction in this matter. He is an American; has lived much abroad; and, being a newspaper man, is probably far from rich. He is, therefore, in a position to tell one of his countrymen

where to go, and how to go cheaply.

In a recent letter Mr. Smalley lays out a trip which can be taken for two hundred and sixty dollars. We give the itineracy in Mr. Smalley's words and figures:

As to the programme: Supposing our student to sail from New York about June 20, he would arrive at Liverpool about the first of July. From there we would guide his footsteps as follows:

July 1. Land in Liverpool. Take first train up to London,
July 2-23. Three weeks in London, with excursions to environs.

London, for Paris, by London,

July 2-23. Three weeks in London, with excursions to environs.
July 23. Leave London for Paris, by London, Brighton and S. C. Railroad.
July 24. Arrive in Paris. Spend three weeks there. August 14. Leave Paris for Rouen and Dieppe. August 15. Arrive in Brighton. Take lodgings. August 17. Leave Brighton for Oxford, via London. Take lodgings.
August 20. Oxford to Leamington. Lodgings. August 21. Excursion to Stratford-upon-Avon. August 22. Excursion to Coventry. Walk home by way of Kenilworth Castle.
August 23. Visit Warwick Castle and Guy's Cliff. August 24. To Birmingham; afternoon to Chester. August 25. Leave all baggage but umbrella and shawl-strap at cloak room, Chester Railroad Station, and take excursion ticket through North Wales, visiting Conway Castle, Bangor, Beauman's Castle (near Bangor in Anglesey), Caernavon Castle, Llanberris Lake, Mount Snowdon, and back to Chester. Time, four or five days. August 30. To Liverpool.
August 31. Sail for America.

The following figures give the cost of the

The following figures give the cost of the trip, as estimated by Mr. Smalley:

London to Liverpool via Oxford, Leamington, Birmingham, Chester, North Wales, 3d class.... Excursions about London and Paris, say.... Sight-seeing and fees at 50 cents per day....
Board and lodging in England, thirty-seven days at \$1.25..... Board and lodging in France, twenty-four

This supposes that the traveler is a man "flying light" as to baggage; carrying, in fact, only a "grip-sack," or such a matter. The figures also suppose that little is done in the gratuity line; for instance, the \$105 allowed for the ocean passage, does not suppose that you will give the steamship stewards the usual gratuity, or anything like it. But the trip as laid down can be made by a gentleman with good lungs and a stout pair of legs for the money stated.

We cannot think of a more delightful first trip for an American. It takes him to souri, and with his career, since that time, wonderful London and beautiful Paris; it the public is familiar. takes him to the greatest port in the world; to Birmingham, one of the greatest manuto Birmingham, one of the greatest manu-facturing cities; and to Warwick castle, one stranger in a strange land (he was born in of the few old feudal castles still preserved with "battled tower and donjon keep." It that, if he lives twenty years longer, he will takes one to the birth-place of Shakespeare; to Coventry, one of the oldest of English cities, and to Chester, with its winding wall. tion to benefit mankind than any twenty In France one sees, besides Paris, Rouen, a wonderful town, with its magnificent cathedral. And, finally, one sees the magnificent scenery of North Wales.

but the traveler may wish to take his wife with him. This considerably complicates the matter, but it can be arranged for five hundred and twenty dollars, we think, where the lady is young, hearty and sensible, by cutting down the time spent in London and Paris, and leaving off, perhaps, the Welsh trip. But, after all, many an American woman can walk as fast and far as her husband, and submit to as many little deprivations. The emigrants who come west on our Kansas roads, endure cheerfully discomforts much greater than would be encountered on the European trip.

Mr. Smalley lays down some rules for traveling which are so sensible that we give them in our way, and in a condensed shape.

- 1. Keep an account of your expenses. 2. Travel with no more baggage than you
- can carry in your hand.

3. Travel third-class in England.

4. Inquire what your hotel bill will be before you run up one. Carry a candle with you on the Continent.

5. Have as little to do with hotels as possible. Always take lodgings if you are to stay more than two nights in one place.

6. Patronize "Walker's line" whenever practicable.

We will add, as a suggestion of our own: Read, before you land in England, "The Walks and Talks of an American Farmer in England," Hawthorne's "Our Old Home," and Taine's "Notes on England."-Commonwealth.

### Prof. C. V. Riley.

We see by our exchanges that Prof. Riley formerly of Kansas — he delivered a course of lectures at the Agricultural College) has been appointed Entomologist to the Agricultural Department at Washington, and it is safe to say that there will be no more entomological commissions appointed while he retains the position.

We first became acquainted with the Professor fourteen years ago, in Chicago. At that time he was a subordinate clerk in the Prairie Farmer office, with a very limited salary, for war times. We boarded at the same house, and well remember some exogy, and spent every cent he could save on entomological works and investigations. Finding that he was well posted, the editor of the Farmer sometimes asked him to answer letters from farmers enquiring about certain insects, and he did this so well that he was presently allowed to devote a column or so of the paper to the discussion of such subjects. In a little while he was sent to various localities to examine new and old insects that were depredating on orchards and crops, and suggest methods of destroying them, and frequently delivering lectures on the subject. About this time we left Chicago, and the next we heard of him he was appointed State Entomologist of Mis-

He commenced life without money, withthat, if he lives twenty years longer, he will be the most noted entomologist in the world, and will have done more in his vocalawyers, living or dead, in theirs. His wonderful success is attributable to two facts: 1st, His enthusiastic devotion to his chosen vocation; and 2d, The practical turn given said, for two hundred and sixty dollars; which he developed. The farmers and hor-position the man.—Nationalist.

ticulturists who sent him bugs and worms, generally did not care anything about their scientific names, orders, species, etc., but did want to know their habits, whether or not they were noxious, and if so how to combat them; and the necessity he was under of imparting useful information, gave to all his investigations a practical turn, and consequently his bias and study is now in that direction. He is not satisfied with mere scientific knowledge, but thirsts to make that knowledge useful to the world, and is fast coming to be recognized as the greatest practical entomologist of the age.

Scientists in other departments may learn a lesson from Riley's career. The future great men of of the world are to be the useful men.—Nationalist.

You who live in the east, who want to "go west," but who are holding back on account of the stories about the increased expense of living in the west, should subscribe for some western local paper, and compare the market reports with those of eastern papers. No matter how greatly a Kansas newspaper exaggerates the beauties of its soil, or the opportunities to become enormously wealthy in a very short time. mously wealthy in a very short time — op-portunities generously not taken advantage of by the benevolent residents — the local market reports are the finger-boards that guide the immigrant surely to the knowledge he is in pursuit of. The intelligent would-be immigrant, when he reads that in Manhattan butter can be purchased at 10 to 20 cents per pound, eggs 5 cents per dozen, chickens \$1.25 per dozen, potatoes 40 to 70 cents per bushel, corn meal \$1.00 per cwt, flour \$2.25 to \$4.00 per cwt, knows that the statement is reliable; and, having a sure foundation to base his calculations on, will not be long in arriving at the conclusion that the cost of living must be nearly one-half less in Kansas than it is in New York or Philadelphia. Many people, whose means are limited, are deterred from coming to this State from the fact that they will not make much the first year, and are afraid they have not enough to get through with. salary, for war times. We boarded at the same house, and well remember some experiments he made raising silk worms in the county where they wish to locate, they will get all the necessary information, the open air, on trees (ailantus, we believe,) in the front yard. The girls sometimes spoke of him as "the man who has worms."

He early developed a passion for entomol-living, while those who have means can find good investments; and there is no better or surer way of ascertaining what you can do, except by actual experiment, than through the press of the State.—Manhattan Enterprise.

Professor Siddons, said to be a grandson of Mrs. Siddons, the actress, has been giving his "Recollections" in a lecture in Washington. Among other things he said that in 1869 he was tutor of elocution to the Prince of Wales, and relates that, at one of the lessons the Prince put his feet on the table, and said, "Look at those boots; I made them myself." The Professor was, of course, astonished, and thought his royal highness was "chaffing," but the Prince explained that his father, having in mind possible reverses, had insisted that each of his sons should learn a trade; accordingly, the Prince himself was a very good shoemaker. Prince Alfred was learning to make his own clothes, and little Prince Arthur worked occasionally with saw and plane, and, as soon as he was strong enough, was to be taught cabinet-making. And yet there are boys in Kansas who feel that they are too smart to waste their time in any really useful employment. They want to go into something "honorable"—forgetting that it is the man All this can be seen alone, as we have to his studies by the circumstances under who should honor the position, and not the

SATURDAY, APRIL 20, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

#### Oh, My!

Only this corner left, and we had forgotten all about the anniversary. Put a the head of the column our gilt-edged cut of the American flag and the chap nailing the colors to the mast; follow it with the biggest rooster cut, swab out his throat and elevate that noble bird of screaming triumph; run out the guns and let fly the double-shotted verities of deeds achieved, till the booming echoes fracture \* \* \* empyrean \* \* \* rolling thunders \* \* eagle \* \* \* \* VICTORY! The INDUS-TRIALIST was three years old last week and starts into Vol. IV, on a clear track with a full head of steam and the throttlevalve wide open!

IT looks as if the Tilton business was a cold-blooded advertising dodge to be regularly played, in a dramatic way, whenever Theodore's notoriety as a lecturer wanes. If so, a man who would coin into lecture fees either the insanity, perjury or infamy of his wife and the mother of his children, is simply a ghoul.

MANY friends will regret to hear of the death of Rev. Dr. Martindale, formerly agent of the American Bible Society for Kansas, who has been blind for some time He was one of God's noblemen on earth, and God magnificently entertains his noblemen in the Golden City. "Good friend, true hero, hail! and farewell!"

WE attended a pleasant meeting of the State Board of Education at Topeka last Saturday. On the recommendation of State Superintendent Lemmon, arrangements were made for county institutes and examinations of teachers. Those applying for a State diploma will hereafter be examined in political economy instead of descriptive astronomy.

GOV. GEORGE A. CRAWFORD recently delivered a lecture in Kansas City on "Kansas at the Centennial," which is spoken of in the highest terms. The Governor is one of the best speakers in the State, and no man had a better opportunity for knowing how Kansas got to the Centennial, what it did while there, and the results of its doing. The lecture can't be anything else than a treat, especially to Kansans.

THE demand for Prentis' "A Kansan Abroad" has been far greater than was anticipated, and as clearly indicates the appreciativeness of Kansas readers as it does the worth of the book. The edition was at first intended to be the usual "thousand," but Martin printed fourteen hundred copies. No especial effort has been made to sell the book, and even the usual advertising has not been done; nevertheless, over half of the copies have already been bought and an offer made by a responsible party to take the rest at trade rates. This has been declined, and a second edition will be gotten out. Good for "A Kansan Abroad" and the Kansans at home.

THE last number of Lippincott's Magazine has a superb leading article by Capt. Henry King, entitled "A Mountain Holiday." It describes a trip on the Denver & Rio Grande Railway from Pueblo through La Veta Pass over the Sangre de Cristo range to Garland. Probably in no one day's journey in any other part of the globe can so much that is sublime and brainy be

seen; and this article is as truthful as it is sparkling. By the aid of the numerous and admirable illustrations, which we presume to be from the pencil of the Kansas Worrall, one sees and feels the whole thing, so far as memory can reproduce sensations of pleasures and grandeurs, or imagination create them. What we like best about Capt. King's writings are those places where Henry King's particular soul flashes out, and this paper is full of them, making the facts of history, altitude, magnitude, curvature and grade, to sparkle like a dewy field in a morning sun.

### Education by the State, No. II.

The Difference Between Society and the State.

In attempting to draw the line between the powers of the State in the matter of education and those of society, we shall be aided by marking more clearly the difference between the State and society, and, therefore, between the objects of the one and those of the other.

By society we mean the aggregate body of individuals living in a given region, whether they have or have not a civil government. By the State we mean that corporate power which makes and executes the laws governing this same body of individuals as citizens or subjects. The word state originally meant the mode or condition of a thing, "status." As applied to a large body of persons, it was naturally used to designate their condition in the matter of government, or as a body politic. When people began to govern themselves, it was employed to designate the corporate power which exercised the functions of governing a nation. And it is properly used to designate the public corporation, or government, which makes and executes the laws that rule the persons living in a specified territory. The word is technically employed to distinguish one commonwealth from another, as Kansas from Missouri; and also to distinguish between a single State and the government of the United States. But in any case, even the latter, it is correct to designate the corporate power which governs as "the State," in contradistinction from the aggregate body of persons who live under the jurisdiction of the particular government, whether it be that of the nation or that of a single commonwealth.

The same man may hold several different relations to other persons at the same time. He may be a husband, a father, a each of these relations he has different powers and responsibilities, yet is he exactly the same person. But his functions as legislator are wholly different from those which he exercises as a stockholder; and the acts which he can lawfully do as a farmer are wholly distinct from those which he may do as a father. And what is true in this respect of one inhabitant of Kansas is true of all persons living in Kansas. Hence, the aggregate body of individuals, or society may have many relations, objects and functions which the State does not and cannot have.

As an illustration, suppose that several thousand Americans should emigrate to some unoccupied territory, over which no nation either claimed or exercised jurisdiction, and that on arrival they found themselves absolutely without law or government of any kind. You would here have society, that is, a body of individuals, but would not have a State, that is, a corporate power exercising the functions of a government.

It is evident that each individual would possess a good many rights. Among these

would be the right to think, based upon the nature of his mind; the right to love or hate, based on the nature of his soul; the right to get hungry, based on the nature of his stomach; the right to hunt for food, based upon the law of self preservation; and the right to accumulate property, by which to provide for the wants of age. He would have the right to say what he pleased, and also the right to take a thrashing from a stronger companion whom the saying didn't please. He would have the right to embark his earthly fortune in the handorgan business, and the further right to have the organ mashed to smithereens by a set of outraged bandits. He would have the right to be as many different kinds of a fool as should suit his fancy, and the right to take as many different kinds of punishment as should suit other men's fancies. All these and many others are termed "natural" rights, because based upon the very nature of man as an intellectual, moral physical, social, independent and responsi ble being. They are possessed by all men as men, and are in nowise dependent upon or conferred by any government.

But the individual would find that either he had too many rights, or else other people had. The territory would be overstocked with rights. They would be far more plentiful than dollars; and, after reserving an abundance for their own use, the emigrants could ship back to the United States enough to start a dozen new political parties with the choicest assortment of "principles." Much of the individual's time would be consumed in enforcing his rights, and after while the task would become irksome. While he might accumulate property he would discover that he could secure neither it nor even his life against a stronger enemy; and would entertain the desire to swap some of his superfluous rights for a little solid protection. Others would reach the same conclusion; whereupon a mass meeting would be called, and the "society" of that territory would be promptly and unanimously on hand.

Some Jim Lane would, on taking the chair, patriotically suggest to his fellow sovereigns that more law and less individual sovereignty would greatly increase the common stock of happiness; that it would promote the general welfare to organize an association for protecting and enforcing the respective rights of their several majesties; and that it would be better in the long run farmer, a member of our Legislature, and to pay a lot of policemen for watching the a stockholder in a bank. And while in spoons and things than to have each sovereign keep awake all night. The association would be formed, and would be the germ of the "State" so far as that society was concerned. Numerous cases would speedily arise requiring an adjustment of the conflicting rights of individuals as related to each other, and also as related to the association; and the decision of such cases would necessitate the determination of the principles upon which the adjustment must be made. The result would be a distinct statement of these principles, by chosen representatives, in a constitution; a statement of the rights of the individual in his several relations; of the powers of the State; and a provision for the making and execution of the laws which should govern the community. And when this constitution was submitted to the individuals and adopted by the majority, that society would also be a State, that is, it would be organized for the purposes of government.

> But now the question is whether the individuals composing this society have delegated to the State the whole of their rights or only a part; and if only a part, what part | lege was endowed.

and for what purpose? Certainly the right to think, to love, to eat, to speak, to work, to accumulate property, to enjoy life, liberty and the pursuit of happiness - these natural rights have not been parted with, because the sole purpose in the formation of the State was to secure individuals in the full exercise of these rights so far as might be done without violating the equal rights of others. Men are not so silly as to bind themselves in a government which destroys their just liberty; and while the legitimate authority of the State is supreme, yet the scope of the State is limited. So far from being an ultimate end of life, the State is only a means by the use of which men seek to gain ultimate ends. Its purpose is to regulate the exercise of natural and civil rights, and its function is to protect society in this exercise. But it is society and not the State which exercises these rights. So that the rights of society are just as numerous and diversified as are the powers of men; while the rights of the State are only such as men have delegated to it.

### Concerning College Lands. No. IV. The second list of lands, selected Nov. 3d, 1864, comprised the following, covering 4,325.40 acres:

Descrip-	Section.	Township.	Range east	No. acres.	Descrip-	Section.	Township.	Range east	No. acres.
Lots 1, 5, 6, 8	29	13	1	165.40	S ½ Nw qr	14  23	1	5 5	320 160
Lots 11, 12, 13, 14	28	13	1	160	N ½ Se qr	34	1 2	6	320 160
N ½ W ½ W ½	15	13	3	320	Ne qr All	25 23 23 24	2 2	7 8	160 640
Negr	7 30	2 2	4	320 160	S 1/2 S 1/2	24	2	8	320
Ne qr All	31 28	2 15	4	160 640	8 "	10	3	8	320

The third list, also selected Nov. 3d, 1864, covered the following lands. Actual number of acres, 7,682.92; reckoned number, 15,365.84:

Description.	Section.	Township.	Range east	Actual No. Acres.	No. Acres Reckoned.	
Se qr	30	9	4	160	320	
Sw gr	8	10	4	160	320	
Sw qr W ½	32 4 10 14 22 32	10	5	320	640	
Sw qr	2	9	5	160	320	
Α ΙΙ	4	9 9 9 9	5	636	1272	
N ½ & sw qr S ½ & ne qr N ½ & sw qr Ne qr & sw qr	10	9	5	480	960	
8 1/2 ne gr	14	9	5	480	960	
N 1/2 & sw gr	22	9	5	480	960	
Ne or & sw or	32	9	5	320	640	
Ne qr & sw qr  N 12 se qr W 12 S 12 Se qr S 1/2 & nw qr Nw qr E 1/2	12	10 7	5	480	960	
W 1/2	24	7	5	320	640	
S 1/2	12 24 4 8 10	9	6	320	640	
Se ar	8	9	6	160	320	
S 1/2 & nw ar	10	9 9	6	480	960	-
Nw ar	20		6	160	320	
E 1/	30	9 9	6	320	640	3
Se qr	32	9	6	160	320	1
S 12	4	10	6	320	640	7
S 12	6	10	6	324.12	648.24	
S 12 S 12 All	8	10	6	640	1280	
N ½	30	10	6	322.80	645.60	
Nw qr & se qr	20	8	6	320	640	
Ne qr	18	10	4	160	320	

It will be noticed that these were all double-minimum lands, and therefore were counted in the endowment two acres for one. This way of counting them reduced the actual number of acres set apart for the College under the endowment act, by 7,682.92 acres; so that while the actual number of acres received was but 82,313.53, the count was 89,996.45.

The endowment granted by act of Congress was "thirty thousand acres for each United States Senator and Representative in Congress." Kansas, having then one member and two Senators, was entitled to ninety thousand acres of land for her Agricultural College. The number of acres received, as reckoned by the Commissioner of the General Land Office, and certified by the Secretary of the Interior, was 89,996.45 acres, being only 3.55 short of the full ninety thousand acres. But, counting by measurement instead of by value, the shortage is 7,686.47, and the actual number of acres received was, as before stated, 82,-313.53; and this is the quantity of land with which the Kansas State Agricultural Col-L. R. ELLIOTT.

SATURDAY, APRIL 20, 1878.

The evergreens are making a splendid growth.

Lettuce, asparagus, onions, and sich like green are in market.

The cattle are making regular aldermen of

The Mechanical Department is turning out a lot of nice tables.

The two societies have a joint discussion to-night in the chapel.

The prospects for large crops this season are unprecedented.

Everybody busy on the farm and nursery, plowing and planting. Prof. Platt's singing classes are getting up some

fine music for the Commencement. Any Kansas teacher can have the Industrial

IST free for two months on application therefor. The College Farm has recently shipped a pair of Berkshire pigs to Hon. George Grant, Victoria,

Corn planting finished, oats well up, blue-grass a foot high, rye in full bloom, are a few of the things on the farm this 16th day of April.

A more thorough, practical and sensible education for the farm and for business life can be obtained at the Agricultural College than anywhere else. Send for catalogue.

This has been a splendid week for growth, and the grains, grasses and trees have put in their best licks. The fresh, green color is as delightful to the eye as cold water to parched throats.

The examination of teachers for State certificates in industrial drawing will include free-hand and geometrical drawing, and will be made wholly irrespective of Willson's or any other text-

The foundations of the new College building are laid, and some of the walls are even with the natural surface. A strong force is at work, and before many weeks the building will speak for

The Farm Department acknowledges the receipt of a nice sample of Macon county yellow corn, from M. Z. K. Wood, of Latham, Ill. Mr. W. speaks highly of this sort, and hopes it will prove valuable here. We shall try it.

From Mr. Joseph Harris, well and favorably known to many readers of the Industrialist as the author of "Walks and Talks," "Harris on the Pig," "Talks With the Deacon," and many other good things, the farm has received a nice package of the seed of his famous Yellow Globe Mangel Wurzel. These are the very best of their kind. Seed may be obtained of Mr. Harris at a reasonable price. Address him at Morelin Farm, Rochester, New York.

In sending the names of those of her pupils who had won the Industrialist prize, Ella C. Squires, of Garnett, Anderson county, writes as follows: "I thought I would like to try what the pupils of my school could do if they had the hope of gaining such a reward, though I tried to impress upon them the fact that each and every one would obtain good in having striven to improve himself. They have all done very well. Many thanks for the offer made to teachers, as it proved a great incentive to study in my school."

Alpha Beta Society called to order April 12th by President Platt. Debate upon the question, "Resolved, That more progress has been made in the last two hundred years than in all previous time." Decision in favor of the affirmative. Select reading by Miss Cook and Chas. E. McConnell. The extemporaneous speaking was quite interesting. The following persons were appointed for duty two weeks from to-day: Declamation, S. E. McNair; essay, Miss Jennie Coe; select reading, Miss Grace Parker. Question for debate next meeting: "Resolved, that more can be done through fear than love." Affirmative, T. J. Wyland and Miss Grace Parker; negative, Miss Allen and Geo. L. Platt. Evrybody is cordially invited to attend the meetings of the Society. We try to make them interesting and instructive. CUMOS.

The following lines are extracted from a letter from Thomas McKee, Skiddy, Morris county: "When I find an opportunity of directing attenion to the 'Industrial College,' I try to do so. I believe that quite a number of young people from about White City expect to attend the College next winter. A young neighbor of mine who is trying hard to get an education, was happy over the idea of going to the common school six months this year. I told him I thought he would accomplish a great deal more at the College. I loaned temperance.

him some of the papers you sent me and the catalogue. He has since made up his mind to go if nothing unusual occurs." A number of teachers in different parts of the State have assured us of the pleasure they take in directing the attention of their pupils to the advantages of the Agricultural College. We are glad to see the interest thus manifested, and shall cheerfully furnish all needed information in regard to the College to those applying for it.

In another column will be found a notice of the death of Mrs. Ed Hunting. Although she had been in poor health for a long time, her death was rather unexpected. The sad news will be a surprise to many old students who knew her well, some of whom have boarded in the family. She was one of the oldest settlers of Manhattan. Her life has been a quiet yet eventful one; and all who came in contact with her can testify to her cheerful, genial nature. The funeral was largely attended Thursday, and there were numerous expressions of tender regard for her and sympathy for the bereaved husband and dear little girl left to mourn the loss of an affectionate wife and mother. The writer, having at one time been a member of this family, learned to esteem very highly the many good qualities which this lady possessed, and is peculiarly touched by her sad demise. As we reflect upon the fact that she has really gone, we are filled with regrets, but remember that one by one we must all soon pass away. . Let us learn to die, and so live that, like one of old, we shall say: "Henceforth there is laid up for me a crown of righteousness, which the Lord, the righteous judge, shall give me at that day."

RELATION OF STOCK RAISING TO THE GENERAL FARMER.

AN ESSAY BY H. F. COE, OF ELEMENTARY CLASS IN PRACTICAL AGRICULTURE.

Stock raising is a subject intimately connected with general farming, and constitutes an important element in the economy of the farm. The aim of the farmer is to make money and to obtain the best results in return for the labor which he expends on his farm. He may expect success in proportion to the care and expense employed. To accomplish this there should be no waste of any of the products of the farm, everything being so disposed of as to bring the largest profit and at the same time maintain the fertility of the soil.

The experience of our best farmers has shown that these results can best be obtained by keeping upon the farm a greater or less amount of live stock, the amount kept to be regulated by the kind and quantity of crops raised and by the situation of the farm with respect to pasturage and water. In a district where wheat raising is a specialty, it will not pay to keep as much stock as where more corn is grown, unless the pasturage is sufficient to make up the deficiency. But by keeping a small amount of stock, the straw which would otherwise be wasted is converted into manure, which enriches the land; and at the same time the animal is producing meat, wool, or some other salable product; and it is chiefly by the sale of these condensed articles that the money of the farmer should be made. The particular kind of stock kept must depend on the surroundings, the markets, and the capital of the farmer; and careful study is needed in determining which is best.

The keeping of stock is of great assistance to the farmer in maintaining and promoting the fertility of the soil. This is shown in raising a wheat crop, the best method of which is to begin in the fall by manuring the land and the next spring planting corn. This admits of thorough cultivation, and when taken off leaves the land in good condition for wheat, without so much 'danger of weeds; whereas, if the manure were applied directly to the wheat, the weeds would probably be a serious inconvenience. If no stock is kept, this corn crop cannot be disposed of in so profitable a manner, and we would not have in our possession the amount of superior manure furnished by it. It would therefore seem that for these reasons if for no others, stock raising is one of the most profitable as well as the most interesting branches of general husbandry.

## ENTERPRISE ITEMS.

Rev. S. W. Lloyd, formerly of this place, now of St. Paul, Minnesota, will deliver a lecture on Odd-fellowship Monday evening, 29th inst., at the Presbyterian church.

Nearly three hundred emigrants passed through the city the past week. The passenger trains have from six to ten coaches attached. Verily, there is a great outpouring from somewhere.

Prof. W. C. Stewart now uses a very simple but effective call with the telephone. It is nothing but a rosined string attached to the diaphragm. This is somewhat cheaper than the \$15 call it was necessary to purchase with the telephone, and is just as effective. The Professor must have been acquainted with the manipulation of a horse fid-

### NATIONALIST ITEMS.

The editor of the Nationalist expects to leave home next week to lecture, for a short time, on

The many friends of Mr. and Mrs. C. H. Henderson will regret to learn that they are intending to return to Yeagertown, Milford Co., Pa., to live.

Land buyers continue to come in. Although the majority of immigrants go to the homestead re-gions further west, yet many are settling in this

Mrs. Albert Griffin is preparing to have a fine flower garden at Dr. Vail's, on College Hill, this summer, and hopes to be able to prove that Kansas can be made a land of flowers

The lilacs are in bloom, and there are several lawns in town where these fragrant old-fashioned flowers remind us of the days of yore. We are glad that old-fashioned things are again fashion-

George A. Wake has removed to Ellsworth, and will be hereafter found with Mr. Gray, the lumber merchant. Mr. Wake is an upright young man of good abilities, ought to succeed, and, we doubt not, will.

#### DIRECTIONS TO APPLICANTS.

TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year if able to pass an additional examination.

year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as posssble.

Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in the College wholly depends upon his own action. The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much

industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

EXPENSES.

There are no charges whatever for enrollment, attendance or instruction in the regular courses nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Weshing costs from sevents from costs from sevents from the costs week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term. Mo student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be

paid for by the party benefited.

Educational Labor.—Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice

necessary to dexterity will be required.

Remunerated Labor. — When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employer instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the source vendered at from seven to ren value of the service rendered at from seven to ten cents an hour.

AMOUNT EARNED.

It is impossible to predict how much a given

person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise 50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

RULES

1. Behave as a true man or woman should, at all

times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.
3. Penalty: "Leave!"

PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Department, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Educa-tion. Price, 75 cents a year. Address A. A. Stew-art, Manhattan.

Spring Term 1878.—Began Thursday, Jan. 3d, and will close Wednesday, May 22d.
Full Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8.30 A. M., immediately er chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

#### DIED.

HUNTING—On Wednesday morning, April 17th, Mrs. Almaria Hunting, aged forty-eight years.

### LITERARY SOCIETIES.

ALPHA BETA .- Chartered, December 26th, 1870. Meets in College building every Friday at 2 P. M. Ladies admitted. New students cordially invited attend. George L. Platt, President. MISS ESTELLE BOUTON, Secretary. to attend.

WEBSTER.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. LEWIS A. SALTER, President.

TULLY SCOTT, Secretary.

### RAILROAD TIME-TABLE.

KANSAS PACIFIC RAILWAY. PASSENGER ARRIVES.

Going West...... 5:45 P. M.

FREIGHT ARRIVES.

Going East...... 5:45 P. M., and 9:45 P. M. Going West...... 6:20 A. M. and 10:50 A. M. Passengers with tickets are carried on any of

the above-named trains.

GEO. C. WILDER, Agent.

S. Roberts, M. D .- Office south side of Poyntz Avenue, between Third and Fourth Residence corner of Third streets.

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Poyntz Avenue, Manhattan.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan.

ty Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan.

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

nglish Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

Jno. W. Webb, Cashier. A general banking business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

SATURDAY, APRIL 20, 1878.

The Talking Machine.

While it is not safe to limit the possi bilities of science and ingenuity in the future, we may well doubt whether there will be more remarkable inventions in the remainder of this century than the telephone and the phonograph. In the history of their invention, the two instruments are intimately connected, one having doubtless suggested the other. We shall not undertake to say which is the more wonderful, but Professor Arnold gives the preference to the phonograph — the machine which stores away speech and reproduces it when wanted. Perhaps the next step of inventive ingenuity will be to combine the two contrivances, so that a message uttered at a distance through a telephone will be recorded for use at leisure, by the phonograph, at the receiving station. This would obviate some of the present inconveniences in using the telephone, and might help to make it of more general service.

The mechanical theory of the phonograph is so exceedingly simple, that the wonder is that it was not invented long ago. The fact that a thin plate or membrane vibrates to sound that strikes it, was recognized many years since as a possible means of transcribing sound. Many attempts to decipher the record have been made. The record itself has been obtained, just as it is in the phonograph, by means of a steel point attached to the vibrating membrane. In Mr. Edison's invention, the vibrating point impresses its record upon a sheet of tin-foil, which is wrapped on a grooved cylinder. The cylinder moves lengthwise as it turns around, so that the record is a spiral upon it, like the thread of a screw. So far, there is nothing surprising. The extraordinary performance is that when the cylinder is set back at its starting-point and turned again, the elevations and depressions in the tin-foil move the vibrating point back and forth, and with it the membrane, setting up anew the vibrations of the air, and thus reproducing the sound itself; giving back words, speech, laughter or music, with start-

It is too soon to say what may be the uses of this strange instrument. As yet its tone is metallic and its enunciation hoarse and obscure; but already it is improving in these particulars, as the causes of its defects are discovered. Methods will undoubtedly be devised for making its voice louder as well as more distinct. Obviously this can be done by any means which enlarge its record, the impression on tin-foil being now almost microscopic. Perhaps this may be done directly, if the vibrations can be enlarged by mechanical connections like those of a pentagraph. Perhaps it may be done by means of electrotypes from tin-foil, which will be increased in all their dimensions by some of the recent processes of photo-engraving. Among the results hoped for, or suggested, is that the actual song of a prima donna may thus be transferred to the hand-organ; though whether street music will be thereby improved, is at least doubtful. A more useful device, if it can be perfected, will be to attach a machine with abundant power of sound to each lighthouse, so that from the dangerous rocks their own name, loudly and continually repeated, may warn the approaching navigator. For such a siren's song, the whole world would be thankful.—New York Tribune.

Kansas raised more corn to the acre in 1877, than any other State in the Union, the average yield in Kansas being fortythree bushels to the acre. In New Hampshire it was forty-two, which was the second highest. In South Carolina the average was only eight bushels. The average yield throughout the United States was twentyseven bushels to the acre. - Exchange.

### Industrial Education.

Industrial Education.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned pro-

fessions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

Normal education:	440 440
Teachers	1.13= 1.13
Professional education:	0.40
Ministers	0.43
Lawyers	0.55
Doctors	0.73 = 1.71
Industrial education:	
In agriculture	59.13
In manufacturing and mechanical	14.63
In personal service	13.89
In trade and transportation	9.51 - 97.16
	100.00

AGRICULTURAL COLLEGE.

Recognizing the need for an education which Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT.

ENDOWMENT. The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its maintenance.

LOCATION. It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an COURSE OF STUDY. ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dress-

making, printing, telegraphy, carving, engraving and music. Wocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reckoned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Dress-Making and Millinery.—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the high-est breeding. Address E, M. Shelton, Manhattan, Kansas

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan.

pducational Calendar.—A wide-awake, spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the INDUSTRIALIST. Geo. W. Martin, Topeka.

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

Inglish Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

Tabits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Mathematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, without they for the benefit of the astronomer. rather than for the benefit of the astronomer.

Phonography.—Instruction given in Pitman's Style of Phonography, recommended and in use by the leading reporters of the United States. A course of thirty-five lessons by mail. To any person having a thorough knowledge of short-hand, an honorable and lucrative living is at command. Reference given. For terms and particulars, apply to or address Charles H. Torrington, Manhattan, Kansas.

Club Rates.—The regular price of the Kansas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the Industrialist for \$2.75; or the Farmer and Industrialist for \$2.25; or the American Young Folks and the Industrialist for \$1.00.

Agricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of Pike's Peak," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "The World A School," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher, Topeka, Kansas.

**Printing!**—Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the con-Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST the Department furnishes advanced students the requisite drill in newspaper work.

Kansas Text-Book, for teachers and students. ELEMENTS OF AGRICULTURAL GE-OLOGY, for the Schools of Kansas, by Prof. Wm. K. Kedzie, M. S., of the Kansas State Agricultural

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact."

In two parts: Part First—Elementary Geology Part Second—Origin and Formation of Soils. Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a Centennial award for quality of work. Kansas work, by Kansas mechanics, at this Kansas establishment. Pronounced "faultless."—Felter's series of School Records, made to comply ter's series of School Records, made to comply with Kansas laws. by a Kansas author and Kansas publisher. The best School Officers' Records in the market.—Felter's Elements of Bookkeeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.—The Annals of Kansas, a marvellous history of Kansas, written and printed in Kansas.—The Educational Calendar, a heaviful monthly publication for the Officers. a marvellous history of Kansas, written and printed in Kansas.— The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for twenty-five cents per annum.— The best Railroad, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment for Kansas equal to the best in America. ment for Kansas equal to the best in America.
Address. GEO. W. MARTIN, Topeka, Kas.

Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixtyfour pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case,

Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific subjects.

subjects.

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the popular taste.

popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

38-4w manner possible.

# KANSAS STATE AGRICULTURAL COLLEGE.

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THIS College furnishes a thorough and direct Mechanics, or to follow other industrial pursuits. As a foundation for each course of study, and for As a foundation for each course of study, and for success in daily life, the first object is to make every student an expert in the use of the English Language as an art; and, also, an expert in Practical Mathematics, including skill in the use of numbers; in the use of lines, or Industrial Drawing; and in Book-keeping.

FARMER'S COURSE.

Building on this foundation, the special object of the Farmer's Course is to give the student a practical knowledge of the structure, growth, and value of Plants; of light, heat, and moisture; and of Inorganic, Organic, Analytical and Agricultural Chemistry, as these are related to Plant and Animal Growth; of Economic Zoology; and particularly of Practical Agriculture and Horticulture, including such instruction and drill in the Field, in the handling of Stock, in the Nursery, and in the Wood and Iron shops, as will enable the graduate to perform readily each of the varied operations of actual Farm Life. The Farmer's Course is the leading one of the Institution.

MECHANIC'S COURSE.

MECHANIC'S COURSE.

To Mechanics, in addition to the studies of the Farmer's Course, applied Mathematics and Industrial Drawing are more extensively taught. Besides this literary education, the student is taught daily in the particular work-shop of his trade. Special advantages are thus offered to those who wish an education as a Carpenter, Cabinet-maker, Wagon-maker, Blacksmith, Turner, Carver, or Engraver. No charge made for the use of tools or materials for class practice.

WOMAN'S COURSE.

The course of study for woman is more practical and, therefore, more sensible than that found in any other institution in the United States. The studies are shaped with reference to the liberal and direct education of woman as a woman instead of as a man, and as an industrialist instead of a butterfly. Among the special features of the course are Physiology and Special Hygiene, Household Economy, Farm Economy, Gardening, Household Chemistry, etc. The work-shops include those of Millinery and Dress-making, Printing, Telegraphy, Scroll-sawing, Carving, Engraving and Instrumental Music.

\*\*TUITION ABSOLUTELY FREE! TO No contingent fees, except for use of pianos and organs in the Musical Department; and a charge of \$1.00 per month for material and instruments used by male students in Printing and Telegraph Departments. Boarding ranges from \$2.75 to \$4.00

CALENDAR: — Fall Term began August 23d, and closed December 20th, 1877. The Spring Term began January 3d, and will close May 22d, 1878.

For further information, apply to JNO. A. ANDERSON, President.

Published every Saturday by the PRINTING DEPARTMENT OF THE

## KANSAS STATE AGRICULTURAL COLLEGE

TERMS OF SUBSCRIPTION, 75 cents per year, postage prepaid. Ten cents per month, postage prepaid. Payment absolutely in advance! Paper stopped at expiration of subscription.

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### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

### FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle. which to record ideas. They are not themselves

### FARMER'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
6014821	100400	1004100	500400
Practical Agriculture (advanced.) Geology, Mineralogy. Polit. Economy, Practical Law. Zoology. Agricul. Chemistry, Meteorology. Logic,	Rotany, Entomology. Inorganic Chemistry. Practical Geometry. Horticul., Landscape Gardening. Organic, Analytical Chemistry. Practical Surveying.	Physiology. Rhetoric. Algebra. Practical Agricul. (elementary). Physics. Industrial Drawing.	Drill in English. Drill in Arithmetic. Industrial Drawing. English Structure. Adv'd Arithmetic, Book-keeping. U.S. History, Industrial Drawing

### WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

### WOMAN'S COURSE.

	. II OTITITE !	0001001	
FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
6014001	500400-	100400	- 4000
Farm Economy, Special Hygien Geology, Mineralogy. Polit'l Economy, Practical La. Zoology. Phys'c'l Geography, Meteorolog. Logic.	Botany, Entomology. Inorganic Chemistry. Industrial Drawing. Horticul., Landscape Gardenin Organic, Household Chemistry. Household Economy.	Physiology. Rhetoric. Algebra. Literature. English Literature. Physics. Industrial Drawing.	Drill in English. Drill in Arithmetic. Drill in Arithmetic. Industrial Drawing. English Structure. Adv'd Arith, Book-keeping. U.S. History, Industrial Drawing

#### 6 . 00 MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

#### The Professions All Crowded.

More and more do we see in this country the effect of crowding the professions, so called. It is a great deal worse in England than it is here, for there everything is crowded, even to the ranks of poverty. Here it has rather been the rage to rush into trade, particularly since the flush times brought on by the war. The panic and consequent stagnation of more than four years nearly cured that, and the movement is now towards the land again. The pendulum is swinging back. Happily our great resource and panacea for all social ills in this country, especially for want, is agriculture. The land heals all hurts and restores society to health and vigor again. Of course the learned professions must recuperate by making continued drafts on the country, but that is a different thing from abandoning the country in order to crowd into them.

Among the middle class in England destitution is reported to be rapidly increasing, and, we are told, especially that part of the middle class which styles itself professional. The number is all the while increasing, so that in 1871 it amounted to nearly one and three-quarters millions, including of course the dependent women and children, In other words, there are three hundred thousand households in the United Kingdom which depend on professional avocations. All the avenues to success in that direction are choked. There is no chance for young men to rise, unless they have special abilities, large means, or special connections. The statement in a recent magazine is that there are thousands upon thousands of young men in England fairly educated, sometimes educated at great expense, not below the average in intelligence, and neither vicious nor idle, who see no way in the world by which they can earn a fair living." It is, fortunately, not so bad as that yet in this country.

Not one-third of them all can earn decent livelihoods for themselves. After some years they manage to get some kind of a position, a small curacy, a clerkship, appointments as assistants, places in banks and mercantile houses, all of which yields starvation incomes, but not enough to support a household. Of course they grow listless, dissatisfied, and finally discouraged. They take any kind of a place that comes under the head of "professional," and for every such place there are always thousands of applicants. The meanness of no employbe suggested. The equal division of property, as in France, has been urged, but that will not be tried yet. Perhaps "business" will in time supersede the professions, but modern education will still continue to drive young men to the professions instead. Emigration will prove the only real relief. It will be in England, in this respect, just as it has been in Ireland in another. We may take a lesson here from what is to be witnessed in England. Instead of crowding the professions, let our young men seek to become skilled artisans and farmers, and they will be far surer of a living than men who think it so much more respectable to be a lawyer or a doctor, but must needs encounter with it the risk of a half existence while they live. - Massachusetts Ploughman.

### What to Teach Girls.

Give your daughters a thorough education. Teach them to prepare a nourishing diet. Teach them to wash, to iron, to darn stockings, to sew on buttons, to make their own dresses. Teach them to bake bread, and that a good kitchen lessens the apothcome, and that all grow poor who have to extent of an inch and to mark an ell. His the country's wealth."-Exchange.

spend more than they receive. Teach them that a calico dress paid for fits better than a silken one unpaid for. Teach them that a full, healthy face displays a greater luster than fifty consumptive beauties. Teach them to wear strong shoes. Teach them to purchase, and see that the account corresponds with the purchase. Teach them that they ruin God's images by wearing strong bodices. Teach them good common sense, self-trust, self-help and industry. Teach them that an honest mechanic in his dress is a better object of your esteem than a dozen haughty, finely-dressed idlers. Teach them gardening and the pleasures of nature. Teach them, if you can afford it, music, painting and all other arts, but consider them as secondary objects only. Teach them that a walk is more salutary than a ride in a carriage; and that wild flowers are a worthy object of admiration. Teach them to reject with disdain all appearances, and to use only yes or no in good earnest. Teach them that happiness of matrimony depends neither on external appearances nor on wealth, but on the man's character. Have you instructed your daughter in these principles, and have they comprehended these principles? Fearlessly allow them to marry; they will make their way through the world.—Translated from the German by F. H. Lehmann.

### Groove-Runner Teacher.

The most useless of stupidities is the teacher who is a groove-runner; who has swallowed text-books without digesting them and feeds his pupils with the morsels as old pigeons feed squabs, until, like himself, they are all victims of mental dyspepsia, which is a curious synonym for education Children subjected to such diet are as likely to get fat and strong as so many grist-mill hoppers that swallow the grain without grinding a kernel. Such teachers forget that one, like Judith's sister "Feeble Mind" in Cooper's novel, may have a prodigious memory. Who has not known a fool who remembered everything he heard and just as he heard it, who could run up and down the multiplication table like a cat upon a ladder, and rattle off rule after rule without missing a word? And that was all there was of it - he was a fool still. A good memory incorporated in a well-built intellectual structure is a noble blessing; but that same memory with nothing are worth less than those papers that losers of lost pocket-books are always advertising for, "of no value except to the owner."

Take English grammar under the man of grooves. Learning to swim upon the kitchen tables, buying a kit of tools and setting up for carpenters, are all of a piece with his grammar. Hear them defining a preposition as "connecting words and showing the relation between them," when not one pupil in a hundred ever finds out whether it is a blood relation or a relation by marriage. -Northern Indiana Teacher.

### Keeley's Motor.

Mr. J. B. Knight, Secretary of the Franklin Institute, of Philadelphia, having been allowed by the Keeley Motor man to examine the true inwardness of the alleged marvelous discovery which was to displace the Newtonian laws of gravitation and the latter theories of the persistence and correlation of forces, has, after several months of patient scrutiny, formed a symmetrical and well-balanced belief that Mr. Keeley is an | 000 acres of land, heretofore comparatively ingenious mountebank, gifted with a clever unproductive, have been covered from six and that a good kitchen lessens the apoth-ecary's account. Teach them that one dol-human critter to be lifted into the infinite posit. The 'hard-pan' covered with this lar is a hundred cents, that only one lavs up and to help lift. Keeley's gauges have all sediment makes the very best grain land. money whose expenses are less than his in- been doctored to succumb to pressure to the So there is \$200,000 to \$300,000 added to

immense masses of iron have been assaulted by no power which would have menaced the integrity of a tin pan, and have served only to aid the maze of pipes, coils, cocks and valves in covering the miserable fraud and gulling the gapping public. The vapor from the machine proves by analysis to be com-mon air, and Mr. Knight says several spheres containing compressed air are secreted, with which the charlatan operates on his gauges of easy virtue, and that no other force has been employed. Mr. Keeley should spend the rest of his life in a reformatory, but he will probably amass riches in a side-show.—Exchange.

THE American department of the Paris Exhibition will be small, but it will contain one little group of inventions which will put it at the head of all the rest in point of brilliant achievements. We mean the little group that Professors Bell and Edison exhibit. The telephone is the first of these, that in its earlier stage made it possible for the notes of music to be heard through a wire one hundred miles long. Besides it will be seen the speaking telephone, which actually transmits the articulations of human speech over like distances. Then in order would come the wonderful phonograph, which receives and stores all sounds that are breathed into it, and reproduces them faithfully at will—that is, in ten min-utes or a thousand years afterward, or whenever the appropriate crank is turned that grinds them out! And as if these were not astounding enough, Prof. Edison has just within a week or two invented another mar-velous thing—the ærograph. This machine intensifies the sounds stored up in the phonograph so that they can be produced with almost any desired increase in power. That is, the speaking voice can be intensified so that it shall be heard several miles away. Captains of vessels miles apart shall be able to converse by means of the erophone, and watchmen on rugged coasts shall shout out to vessels in the fog, telling them how to safely steer.

### The Fruit for Boston.

The New England Farmer thus notices the shipment of apples from Leavenworth to Boston, of which we spoke a few days

"There are indications that eastern people are hereafter to depend upon the far west for fruit as well as for grain and cattle. match it is like a garret without any house Kansas, which less than twenty years ago er daunts them. For a remedy nothing can under it, a receptable of odds and ends that was an unknown country in the 'Great American Desert,' is taking a leading position among the fruit-growing States, as shown by her exhibitions of fruit at Philadelphia and in this city, which excited the wonder and admiration of pomologists. Messrs. Sands, Furber & Co., Faneuil Hall Market, have just had a consignment of apples, of the Ben Davis and Willow Twig varieties, from Leavenworth, forwarded by Messrs. Farrell Bros., of Leavenworth, which will give purchasers an idea of what some of their choice apples are like, and are expected to open the way to a large trade hereafter."

> A SHORT time ago California journals were lamenting the damage done by floods to the State. The floods have passed, and now they are calculating the money value of the real estate left by the waters. The Colusa Sun says: "It is a pleasure to be able to note the good done by the storm, as well as the damage. From the best information we can obtain, we estimate that 10,-

SATURDAY, APRIL 27, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

ACCORDING to statistics published recently there are now a full hundred of colleges and universities in the United States in which the co-educative system prevails. Of the academies, normal schools and high schools, more than sixty per cent are for the education of both sexes. The wisdom of this system is now generally acknowledged.

#### The Meter.

The Legislature of New Jersey provided at its last session for the placing of a set of metric standard measures in every public school within the State. Such news as this is encouraging. It indicates that the coming generation at least, if not the present will reap the benefit of the "greatest invention of human ingenuity since that of printing," as John Quincy Adams called it. It indicates that the meter is coming surely if slowly, and that America is awakening to its interests. We need the new system more than any other nation, as nowhere in the world can be found to-day a more genuine abracadabra of irregular measuring units than with us.

The channel through which we can introduce it is the public school. The teachers, united as to the advantages of the system work with enthusiasm for it, but the same voice is heard everywhere: Give us measuring units. The step of New Jersey was the right step in the right direction. Let our Legislature follow, then others will follow, and the meter will be a fact among us -J. D. Walters.

### Text-Books on Industrial Drawing. NEWBURY, Kas., April 5th, 1878.

DEAR SIR: - Would ask your opinion as to the best elementary text-book on industrial drawing for use in well advanced country schools. What do you think of Willson's course? Please answer through Industrialist if possible, and B. Buchly, Teacher.

The Drawing Department has received in the past six months perhaps a dozen letters enquiring after suitable text-books of industrial drawing, and it gives me great pleasure to answer them, if thereby I contribute something to the advancement of a study so much neglected in our public schools. The importance of this branch of education is not yet acknowledged, as it certainly will be in the future. The education of the eye is of infinite value, and the hand once master of the arts of design will handle more skillfully all other tools. He who masters drawing commands a dozen professions, and through all the changes of fortune, independence and self-reliance are never lost. A knowledge of drawing is always a livelihood. It is the key to every artistical, engineering and mechanical pursuit. A good draughtsman always commands employment, and stands upon the broad road to future progress. And who will estimate the moral influence of such a systematic study of the beautiful?

Prof. Buchly asks for the "best" textbook for his school. A work that covers the entire ground of elementary industrial art education is the one of Prof. Walter Smith, State Director of Art Education for Massachusetts, General Supervisor of Drawing in the Boston Public Schools, and Director of the Massachusetts Normal Art School. His works are the most comprehensive course of instruction in drawing I know of, accessible to American schools, and I heartily recommend them. The course is so longed to it rather than him, and which it sian, French and English systems, the pri-

graded as to meet the wants of every class of pupils, from the lowest primary class to the most advanced class of the high school. The system is composed of-

1. A primary course, consisting of two series of cards containing exercises for pupils to draw on their slates.

2. An intermediate course, consisting of three small drawing-books of twenty pages each, especially arranged for pupils when they begin to draw on paper.

3. The grammar course, consisting of four books in free-hand outline drawing, four books in geometrical drawing, and two in perspective drawing.

4. The high school course, which consists of advanced instruction in perspective and mechanical drawing, as well as shading, coloring, drawing from nature, and designing.

A manual for the use of the teacher accompanies each of these four courses. The work is published by Prang & Co., Boston, and is comparatively very cheap. We use here at the College the grammar and high school course, with the very best results. For your purpose, the first and second course would form a neat programme. There are, of course, other works that are perhaps equally as good, where less systematic efforts are made; for instance, "Krusi's Common School Course," Appleton & Co., New York.

Willson's books were the standard work last year for our teachers' institutes, and I suppose that on examinations for certificates most questions in drawing are read from its pages. Yet, if the work gave satisfaction, the first question would not be asked so often. I will be brief and say that in my humble opinion Willson's text-books on industrial drawing are worse than the average of perhaps forty different works which I have examined in Europe and the United States. If necessary, I will speak of its numerous defects in a future article.-J. D. Walters.

#### No. III. Education by the State. Subject or Citizen?

It is universally agreed that the authority of the State is supreme, as distinguished from the authority of society. No individual nor any band of individuals has the right to resist the execution of law. If an officer exceeds his authority, the code provides a remedy for the wrong thereby done to the individual, and a punishment of the officer; but the power of the State to enforce law not only is but ought to be

Yet while there is no limit to the intensity of the State's power, there is a limit to the domain in which it may exert that power. Its authority is supreme but not universal. A man's thoughts, for instance, are beyond the jurisdiction of the State. Upon any topic whatever he can think precisely as he chooses, and its power cannot reach him in the exercise of that natural right. If he expresses his thoughts by words or actions injurious to another, this expression may come within the jurisdiction of the law; but the act of thinking is beyond its reach. So that while the power of the State is unlimited as to force, it is clearly limited as to scope.

There are two theories in regard to the proper boundaries of the State's jurisdiction. The first is that the scope of the State is as universal as its authority is supreme; that, by divine right, the governing power originally embraced all the relations and actions of the subject; that such liberties as the subject may enjoy are gracious gifts to him by the State of a right which primarily be-

might have withheld or may revoke. This is the European notion, and was arrogantly expressed by the monarch who said, "Who is the State? the State is I."

The other theory is that the people are the sole source of power; that the State is merely the embodiment of the will of the people; that its authority is absolute just because they so agree, and for no other reason; that its jurisdiction extends precisely as far and no farther than the boundaries which they see fit to assign; and that the majority may at any time, in a specified way, extend, diminish, or even abolish its jurisdiction.

Under the European theory the king is the source of all authority, and the subjects exist or act by royal sufferance. Under the American theory all men exist by the right of nature, having the same title to life as has the person who claims to be king; all men exercise their natural rights just because they are men, and not because of the sufferance of the government; and, so far from receiving their liberties as a concession by the State, the State itself is only their servant, to go, come and act according to their bidding.

These two theories are squarely antagonistic in all points, except the one that the authority of the State is absolute. And it is evident that the notion which we will have as to the proper scope of the State in the matter of education, as in all matters, will largely depend upon our adoption of the one or the other of these theories.

If the former be the correct one, the argument will be this: The State, as distinct from society, is the source of power and its jurisdiction is universal. Individuals exist merely as subjects of the State and are properly regarded by it as laborers, through whose skill and toil its strength and wealth are increased. The relation between the two is that of master and slave, or guardian and ward, or parent and child -according to the humanity of the government. In shaping its systems, the State is first to consider its own power or glory, and, as subsidiary thereto, the welfare of the subject. Whatever may be needed in executing its policies it is bound to furnish for itself. On the principle that farmers break colts and train horses in order to secure a needed motor power, so the State must educate children and train workmen in order to secure skilled producers. Intelligence creates more wealth and increases the taxable property more rapidly than does ignorance, and therefore the State, regarding its interests as paramount, is bound to educate Or, if it acts as guardian to a ward, then for the ward's interest it is equally bound to educate. As a logical conclusion from this theory, the State in its capacity of king, guardian or parent, as you choose, is imperatively required to establish schools; to train, appoint and pay teachers; to compel the attendance of children; to maintain all grades and varieties of higher schools and colleges for the development of its own experts in the several sciences, and for the preparation of the artisans and professional men whose service may be needed by its communities.

And this is the theory on which the educational systems of Europe rest to-day, with more or less modification. It is logically carried out in Switzerland, where a parent cannot keep his child from the public school, and, instead, send him to a private one; and where the office of teacher is a State appointment, with the salary graded according to length of service, terminating in a life pension. The same idea underruns the Prus-

mary object being to make the subject intelligent for the benefit of the State, rather than for his own welfare. Under this theory the State not only may but logically should monopolize the work of education, since as guardian it is bound to educate the ward, or as master to increase the skill of the servant; and any efforts which individuals may make towards establishing colleges would be made by the sufferances of the State, and not as an exercise of personal

But that is very far from being a logical conclusion from the American theory. With us society is the source of power, and the State is merely a convenient machine for registering and executing the will of society. The notion usually entertained by an American father is that he and not the State is the parent of his children, and that he and not the State is primarily responsible for their education. He fully understands that in case he fails to perform his parental duty to the child, the State can compel such a performance - not, however, because the State holds the relation of parent, but because of its authority to protect the rights of minors as of other persons. And he entertains the general belief that his boy Tom wasn't created for the particular benefit of the State, but for Tom's own particular benefit as a distinct and responsible being; and that he will endeavor to see that Tom's education is shaped with direct reference to the boy's especial interests as an intellectual and successful man, and not as a mere subject of a kingly State. He has the further notion that as a citizen, as well as a father, it is his personal right to buy or establish such educational facilities as he may please, and that no matter how far the State shall go in the work of education it cannot monopolize that field. The interests of the commonwealth may demand the establishment of schools and colleges by the State; but these interests cannot destroy his interests as a father, or deprive him of the liberty to send his boy to any school he desires. While admitting the right of the State to secure itself against an ignorant constituency, he claims that the relation of parent to child is one resting in nature and not derived from the State; that the consequent obligation upon the parent to educate the child is an obligation of nature, and not of government; that while the State can compel him to discharge this obligation, it can not lawfully prevent him from so doing; and that in the discharge of his parental duty he is to have the largest liberty, consistent with the rights of others, in the selection of the means which he chooses to employ. There is somehow in him a luxuriant feeling, springing from every side of his fervent soul, that when he wants the State to take his place as father to Tom, and to discharge his parental duties to Tom, he will call around and leave word; and the further feeling that if the State is going into that sort of business, he will, "at the earnest solicitation of many friends," be a candidate for Representative at the ensuing election.

What is true in his case is equally true in the case of his neighbor, and so in all cases. In other words, under the American theory, while the State has a right to educate, society has a greater right - one springing with eternal vigor from the relationship of parentage, and supple with the inherent liberty of God-created manhood. The right of the mother to her child is an older, stronger and grander right than that of governments. It and its consequent obligations are not and can not be parted with when men agree to form a government. It is a higher right than that of the State.

SATURDAY, APRIL 27, 1878.

A more thorough, practical and sensible education for the farm and for business life can be obtained at the Agricultural College than anywhere else. Send for catalogue.

Last Tuesday morning President Anderson started for southern Kansas, and has not yet returned. He delivered his lecture on "Kansas" at Winfield Thursday night and Wichita Friday night.

Remember that Rev. S. W. Lloyd, formerly of Manhattan, lectures on Odd Fellowship, next Monday evening, at the Presbyterian church. Admission, 25 cents. Tickets for sale at Fox's book-

Charlie Streeter, of Milford, was in Manhattan a few days ago. It is rumored that he is soon to form a partnership with one of the fair ladies up in that vicinity. Well, Charlie, such is life. Is it too soon to offer congratulations?

"Blind Tom," the greatest natural pianist living, will give one of his performances at Peak's Hall, in Manhattan, Saturday evening, May 4th. Tickets, 50 cents. The entertainment will be a rare treat, and the great performer will have a full

Our genial friend, Will Sternberg, agent for the Kansas Pacific at Buffalo Station, spent two days in Manhattan this week. Will had been East on business, and was just returning to his post. He is a live young man, and has enough "push" to win a desirable place in life.

Wednesday morning we received a pleasant call from Capt. George R. Peck, the U. S. District Attorney for Kansas. Unfortunately for him, the President was absent and the teachers busy, so that he had to find his way through the different departments alone. He promised to come again, and seemed much pleased with the appearance of the institution.

Wm. Ulrich, one of our last year's graduates, has the contract for cutting the stone of our new College building. Mr. Ulrich is a speaking illustration of the work which this institution turns out, and we are proud of him. Let the man with the gold-headed cane, the spectacles, and the original edition of "sancta simplicitas" come around and make a note of this, - that man who said that industrial colleges were a failure.

The Western Review of Science and Industry is undoubtedly the best edited and most practical scientific journal in the West. Though compiled for popular reading, it is at the same time rigidly accurate from a scientific standpoint, which speaks volumes for its accomplished editor, Col. Theo. S. Case, of Kansas City. The Review should receive the support of every teacher, professional man and student who desires to keep pace with the wonderful discoveries of the day. Mr. Arthur T. Blain has charge of its subscription list for Manhattan.

An effort is being made to hold a State Fair this year. A committee from the State Board of Agriculture has the matter in hand, and has sent out a circular setting forth the general plan of the work. In it the committee asks that the citizens of the State subscribe \$10,000, to be placed to the credit of the committee and used by them in paying premiums and expenses of the fair, with the assurance that every dollar received from the exhibition shall be returned pro rata among the contributors. Persons desiring to contribute to the fund can ascertain particulars by addressing Thos. H. Cavanaugh, Wm. Sims, J. W. Johnson, John Kelly, Committee on State Fair.

### LABORATORY NOTES.

A fine specimen of Tripoli, nearly pure silica from animalculine deposits, has been received from Rooks county. It would furnish a superior polishing powder.

A large number of orders for cabinets of minerals and soils to be used at county normal institutes have been received, and are being filled as rapidly as possible.

Samples of all known varieties of Kansas-grown corn, together with sorghum and broom-corn (the latter from Secretary Gray), have been collected, and will during the coming vacation be submitted to careful analysis, for the purpose of ascertaining their relative food values.

The class in chemical analysis, all of whom have been doing very good work this term, are now engraged in independent analyses of a large number of commercial and natural products,-minerals. ores, alloys, druggists' materials, baking powders. etc. Occasionally a patent mixture is brought in for examination. A "safety powder" for use in kerosene lamps, analyzed by Mr. A. T. Blain, contained common salt (with a little magnesium chloride), 99 parts; indigo, 1 part.

The Grand Division of the Sons of Temperance of Kansas held a very pleasant session at Clay Center, on Wednesday of this week. It was a semi-annual meeting, having a smaller number in attendance than was hoped for, and yet much interest and enthusiasm was manifested by all present. Some very important matters, affecting the growth and welfare of the order, were considered. The Sons of Temperance in Kansas are in a thriving condition, have made rapid strides in the last six months, and expect in the next half year to keep | Mrs. Coe and Messrs. Perry and Mann, rendered pace with their past record. We have not room for a lengthy report of the meeting, but prominent among those present from other localities than Manhattan and vicinity and Clay Center were J. A. Jourdan, Ogden; J. L. Troup, Minneapolis; A J. Carpenter, Milford; H. C. Robinson, Greenleaf; James Thomas, Bala: Major F. W. Parsons, Beattie; Rev. R. Wake, Waterville; Isom Tull, Wabaunsee; Revs. John Hageman and A. N. See, of Washington. Nearly all of the representatives sacrificed time and personal interests to attend the meeting, and thus showed their love and zeal for

A public temperance meeting was held in the Methodist church Wednesday evening, and for an hour and a half that large audience listened attentively to ten-minute speeches by various members of the Grand Division, after which the Murphy pledge was circulated. The annual session of this grand body will be held in Washington, next October.

# SELECTION AND ART IN THE PRODUCTION OF IMPROVED STOCK.

AN ESSAY BY GUS H. PLATT, OF ELEMENTARY CLASS IN PRACTICAL AGRICULTRRE.

Every young breeder is ambitious to improve the character of his stock. We do not wish to try to make improvements in every direction, but we wish to improve in one single direction and for some one especial purpose, because those animals which have been bred in a single direction are much more valuable than those that have not. We must first make a careful selection of the animals around us, always purchasing the very best; and, further, we must not select one animal which has very excellent qualities of one kind, and then select another which may have very good qualities but of an entirely different character from those of the first. We must always be careful in the selection of animals to select all of them possessing the same characteristics. For instance, if we wish to build up a beef breed of cattle, we must select each one of our animals with reference to the ability to lay on an abundance of flesh; or if we wish to establish a breed for dairy purposes, we must choose our animals from those which show good milk-producing qualities.

If after we have made our selection, we cannot find outside of our herd animals possessing qualities similar to those of our own breed, we may begin to in-breed, and here again we must be exceedingly careful in selecting animals for this puspose.

If we are not, our herd will degenerate so that in a few years it would be much less valuable than when we commenced. If we let our herd run together and breed without any selection whatever there would be many more diseased and stunted animals, and our herd would degenerate in every direction. Thus, each of any two parents transmit one-half of the qualities of the offspring, so if both the parents were diseased the offspring would be likely to be doubly diseased, while if both the parents were good the offspring would be proportionately better. So we see that in-breeding is useless and often very dangerors without careful selection.

In the improvement of stock we should also take into account the effect of climate, food and care. Thus, we should not take a breed of cattle from one climate into another unless the change would tend to improve the breed; and it would be useless to try to improve a breed by removing it from good food and care and placing it under poor care and giving it inferior food.

### THE JOINT MEETING.

A joint session of the Alpha Beta and Webster societies convened in the college chapel on Saturday evening, April 20th. A majority of the students were present. Session called to order and conducted by the worthy chairman, A. E. Wilson. The meeting was opened by a song, entitled "The Home of the Soul," followed by devotion. After the quartette, "Summer Days," a declamation entitled "Look Aloft" was well rendered by Miss Nena Wilson. The Webster Reporter was then presented by T. R. Moore, who not only displayed his remarkable talent as an editor, but furnished the audience with all the news of the surrounding vicinity as well as with advertisements of the different business men connected with the Society.

Next in order came the debate. The question in discussion was: "Resolved, That secret societies are productive of more harm than good." Opened by A. N. Godfrey on the affirmative, who brought forth his arguments with that ease and good nature so peculiar to the well-known speaker.

Then appeared G. L. Platt of the negative, who

with his winning ways and pleasant words turned the opinions of the auditors in exactly the opposite direction to which, a few moments before, Godfrey was so earnestly pointing them. Next appeared the commanding form of W. H. Sikes, who again changed the belief of all present, until S. C. Mason put in his "say," when they were headed toward secret societies. So they were wafted as the four winds until the chief disputants made their closing speeches, when the judges, their decisions unanimously in favor of the negative. After debate the "Centennial March" was played by the illustrious "Combseana Band," of the College. A speech by Mrs. Jones, relating her trouble in regard to the inferiority of singing at the present time, excited respectively mirth, sympathy and general good feeling. The Gleaner was then presented by Miss Estelle Bouton, containing its usual amount of nuggets of knowledge, good advice, news and jokes, besides expressing its opinion on the topics of the day.

The session was closed by a beautiful quartette, entitled "Only Waiting," but as the audience had already waited until nearly eleven o'clock, it concluded that the "shadows were long enough grown," and proceeded to repair to the "Rest for the Weary." Many thanks are due Miss Carrie Steele for her efficient aid as organist, also to those of the singers who are not members of either of the societies. Last but not least, we heartily give our thanks to the committee on music, Messrs Wilson and Mann, for selecting and arranging the pieces, and especially to the latter for so dexterously wielding the "baton." The students apparently enjoyed themselves, and all countenances were expressive of profit and pleasure when the meeting adjourned for the night. MERCURIUS.

### ENTERPRISE ITEMS.

The merchants report a good trade day last Saturday.

Corn is now twenty-five cents per bushel. This is owing to the cut on freights from Kansas City

Wheat and rye are heading out. Harvest will come in May this year if there are no more drawbacks.

The farm of John Hardy, on Wild Cat, has been sold to an eastern gentleman for \$2,400. This is the cheapest place we know of. The buildings could hardly be put up for that sum.

It is unlawful for any person to fish with a seine or net in the waters of the State of Kansas during the months of April, May and June. The fine is not less than five nor more than fifty dollars.

### NATIONALIST ITEMS.

Peaches are doing well, the early varieties being nearly a quarter of an inch in diameter.

The College grounds have assumed quite a rural appearance since the trees are in full costume.

The new school-house that looms up so grandly is an ornament to our town. It will be completed in time for occupancy this fall.

"The most beautiful town in the State," is the remark we constantly hear made about Manhattan by strangers who have traveled considerably.

The stone walk east of the College buildings is now in deep shade from the overhanging maple boughs, and forms a delightfully cool promenade.

Prof. Kedzie exhibited some interesting experiments in electricity at the College on Tuesday, before the class in elementary physics. It consisted of differently colored electrical lights, many of which were strikingly beautiful, produced by electricity passing through a vacuum.

At this season the view from Mount Prospect and Bluemont is really entrancing. The winding valleys of the Kansas and Big Blue, skirted with timber; the broad bottoms carpeted with verdure; the innumerable hill-points covered with green, and the ravines between them filled with trees; and the "Beautiful City" spread over the plain elow, combine to make up a panorama of almost matchless beauty. Turn whichever way you will, and the prospect is still changing and bewitching; and look as often as you may, something new is seen each time

Any Kansas school teacher can have the Manhattan Industrialist free two months by sending his name. It is the best paper of the kind in the West. Teachers, send for it.—McPherson Independ-

Lewis Salter "graded between 95 and 100 in all his studies," as we learn from the Manhattan In-DUSTRIALIST. He is credited to Montgomery county because the Governor lives there, but Lew lives out on the farm, three miles from Thayer, where he is putting his education into practical use on the farm. We are proud of such boys.—Headlight.

President Anderson, it should be remembered. lectures at the Presbyterian church on next Fri-day night. He is one of the ablest men in Kansas, and his lecture will be both entertaining and instructive. Another inducement to attend is the fact that the lecture is for the benefit of the Library Association — an institution that should receive the unreserved support of our citizens. Tickets to the lecture, 25 cents. Reserved seats, 40 cents. -Wichita Herald.

Our Agricultural College has no superior on the continent. There the student, under the guidance of able, practical men, can thoroughly prepare for the active duties of life, and on graduating launch his bark on the great stream of American civil life without fear of being swamped or run down

by the more pretentious eastern craft.

It is the school of the farmer, mechanic and business man, and as these are they who consti-tute the mass of our population, the State, by its authorities, has done well in making the Agricultural College a chief object of advancement.—Alma

#### DIRECTIONS TO APPLICANTS.

#### TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted

must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of such tarm or descent thereafter as possible. each term, or as soon thereafter as posssble.

#### EXPENSES.

There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplish-

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and

amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students 'desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

#### TO NEW STUDENTS.

Bring the text-books you have been using. On string the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

### LITERARY SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in College building every Friday at 2 p. m. Ladies admitted. New students cordially invited GEORGE L. PLATT, President. MISS ESTELLE BOUTON, Secretary.

WEESTER.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. Lewis A. Salter, President.

TULLY SCOTT, Secretary.

## RAILROAD TIME-TABLE.

### KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going East. ...... 10:50 А. М. Going West..... 5:45 P. M.

FREIGHT ARRIVES. Going East...... 5:45 P. M., and 9:45 P. M. Going West...... 6:20 A. M. and 10:50 A. M. Passengers with tickets are carried on any of Passengers with the above-named trains.

GEO. C. WILDER, Agent.

### METEOROLOGICAL RECORD.

Condensed by Prof. Kedzie from the observations taken at the State Agricultural College, for the week ending April 25th, 1878. Latitude, 39°12'; Longitude, 96°40'; Height, 1,200 feet.

		Te	mper	rature.	Bar.	of II.
DAY OF WEEK AND MONT	н.	Max.	Min.	Mean.	Mean Hight.	Inches of Rainfall.
Friday	19	710	1410	156°.25	28.57	
Saturday		77	42	68 .25	28.59	
	21	85	50	74 .50	28.36	
Monday	22	76	44	67	28.36	
	23	68	41	56	28.43	
Wednesday	24	70	37	60	28.52	His
Thursday	25	70	35	55 .75	28.59	

Average temperature for the week, 62°.50. Range of temperature for the week, °.50.

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Poyntz Avenue, Manhattan.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan.

Manhattan Bank.—E. B. Purceil, Banker: Jno. W. Webb, Cashier. A general banking business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

SATURDAY, APRIL 27, 1878.

"A Kansan Abroad." Geo. W. Martin has published at Topeka a book containing the letters written from Europe last year by Noble L. Prentis, and published in the Commonwealth; also two lectures by Mr. Prentis, "Pike of Pike's Peak," and "The World a School." It is a book of 234 pages and a two-prentical in the control of 234 pages and a two-prentical in the control of 234 pages and a two-prentical includes the control of 234 pages and a two-pr a book of 234 pages and a typographical beauty—so fair indeed to look upon that we hope it will be sent to the best papers in the East for their praise of its typographical excellence as well as their opinions on the Kansas author.

Mr. Prentis was born in Central Illinois, of New England parents, and that was a good birth to give a man cosmopolitan instincts. He can appreciate the West and the East, being a part of both, and when he travels abroad he can look upon foreigners without prejudice. In copying portions of his letters last year, we said that one of their leading characteristics was their friendly and impartial view of the English, Irish, French, or of whatever people the generous young American happened to meet. He was in sympathy with the people he saw, and so drew the best out of them and gave back the best of himself.

His education, as he says, has been obtained in the Knock About University, the world having been his school. The first paper he remembers reading was a St. Louis paper, and since that time he has read millions of papers and many books. Prentis is a printer, and they are apt to read a good deal. When the war broke out he enlisted as a private soldier in Col. Smith's 16th Illinois, the first regiment, we believe, to reach St. Joseph. He was on Prospect Hill the day when the cannon-shot aimed at the Patee House, King Hill, of Platte City, went tearing through the heart of St. Joseph, ruining many a frame shanty on its way. After that the soldier boy went to the southwest, marched with Sherman to the sea and ended his campaign at Washington. On all his marches he read books; we don't think Prentis ever killed anybody - read books and made friends.

His newspaper publishing experience began and ended in this State; in Scotland county, we believe, where he gave the rebels fits but soon retired with an empty pocket. He has been in Kansas about ten years editing the Topeka Record, Lawrence Journal, Junction Union, and the Commonwealth, and telling more good stories than any other man in that cheerful State.

As a traveler he has the eye to see, the heart to feel, and the pen to describe. His familiarity with history is shown on every page, not offensively but pleasantly, and with advantage to the reader. No more happy American has been abroad for many a day, and those who read his charming sketches will see with him the men and scenes of the storied land which must be forever unvisited by most of us.

The lecture on Zebulon Pike, the first one

of our countrymen who saw that famous Peak that now bears the explorer's name, forms the most valuable part of the book. It is history, poetry and patriotism blended, and does ample though tardy justice to the brave soldier who first carried the stars and stripes from the Missouri river to the Rocky Mountains.—St. Joseph Herald.

DURING 1877 Paris had 836 newspapers and serials, against 754 in 1875. Of these, 51 daily and 14 weekly papers are political; 49 serials are theological, 37 Catholic, 10 Protestant and 2 Israelite; 66 are legal, 85 politico-economic, 52 scientific, 56 artistic, 20 geographical, 74 devoted to belles lettres, 20 are pedagogic, 98 treat of fashions, 77 technology, 75 of medicine, 43 are mathematical and scientific, 22 military, 31 agricultural, 16 sporting, 13 miscellaneous and 4 Free Mosonic.—Exchange.

# Industrial Education.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law. those proposing to enter the professions of law. medicine or theology; and an agricultural college medicine

fessions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

10110 11 0 1	
Normal education: Teachers	1.13- 1.13
Professional education:	
Ministers	0.43
Lawyers	0.55
Doctors	0.73 = 1.71
Industrial education:	
In agriculture	59.13
In manufacturing and mechanical	14.63
In personal service	13.89
In trade and transportation	9.51 = 97.16
	100.00

AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is ant to mislead those who are not the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

LOCATION. It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an the following sciences as essentially useful to an intelligent and successful farmer: Physiology, intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dress-making, printing, telegraphy, carving, engraving and music.

Wocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reck-oned as an "industrial."

echanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Dress-Making and Millinery.—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

The Farm Department of the Agricult-ural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the high-est breeding. Address E, M. Shelton, Manhattan, Market B, M. Shelton, Manhattan, M. Shelton, M Kansas.

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan.

goldentional Calendar. — A wide-awake, spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

Farming for Profit.—Special courses in Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Tathematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rether then for the herefit of the astronomer. rather than for the benefit of the astronomer.

Phonography.—Instruction given in Pitman's Style of Phonography, recommended and in use by the leading reporters of the United States. A course of thirty-five lessons by mail. To any person having a thorough knowledge of short-hand, an honorable and lucrative living is at command. Reference given. For terms and particulars, apply to or address Charles H. Torrington, Manhattan, Kansas.

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sas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the Industrialist for \$2.75; or the Farmer and INDUSTRIALIST for \$2.25; or the or the Farmer and INDUSTRIALIST for \$2.25; or the American Young Folks and the INDUSTRIALIST for \$1.00.

A gricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of Pike's Peak," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "The World a School," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher. Topeka, Kansas. Topeka, Kansas.

Printing!—Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery nished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST by the Department furnishes advanced students the requisite drill in newspaper work.

A Kansas Text-Book, for teachers and students. ELEMENTS OF AGRICULTURAL GEOLOGY, for the Schools of Kansas, by Prof. Wm. K. Kedzie, M. S., of the Kansas State Agricultural

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact."

In two parts: Part First—Elementary Geology Part Second — Origin and Formation of Soils.

Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a Centennial award for quality of work. Centennial award for quality of work. Kansas work, by Kansas mechanics, at this Kansas establishment. Pronounced "faultless."—Felter's series of School Records, made to comply with Kansas laws by a Kansas author and Kansas publisher. The best School Officers' Records in the market.—Felter's Elements of Bookkeeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.—The Annals of Kansas, a marvellous history of Kansas, written and printed in Kansas.—The Educational Calendar, a beautiful monthly publication for the Officers, a marvellous history of Kansas, written and printed in Kansas.— The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for twenty-five cents per annum.—The best Railroad, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment for Kansas equal to the best in America.

Address. GEO. W. MARTIN, Topeka, Kas.

Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixty-four pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case, Kansas City, Mo.

This journal has received the warm approval of

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

Being the only journal of the kind in the West, it should receive the patronage and scientific conrishould receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

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# KANSAS STATE AGRICULTURAL COLLEGE.

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THIS College furnishes a thorough and direct education to those who intend to be Farmers, Mechanics, or to follow other industrial pursuits. As a foundation for each course of study, and for As a foundation for each course of study, and for success in daily life, the first object is to make every student an expert in the use of the English Language as an art; and, also, an expert in Practical Mathematics, including skill in the use of numbers; in the use of lines, or Industrial Drawing; and in Book-keeping.

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Building on this foundation, the special object of the Farmer's Course is to give the student a practical knowledge of the structure, growth, and value of Plants; of light, heat, and moisture; and of Inorganic, Organic, Analytical and Agricult-ural Chemistry, as these are related to Plant and Animal Growth; of Economic Zoology; and particularly of Practical Agriculture and Horticulture, including such instruction and drill in the Field, in the handling of Stock, in the Nursery, and in the Wood and Iron shops, as will enable the graduate to perform readily each of the varied operations of actual Farm Life. The Farmon's Course is the of actual Farm Life. The Farmer's Course is the leading one of the Institution.

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ATUITION ABSOLUTELY FREE! CA

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CALENDAR: — Fall Term began August 23d, and closed December 20th, 1877. The Spring Term began January 3d, and will close May 22d, 1878.

For further information, apply to JNO. A. ANDERSON, President.

Vol. IV.

MANHATTAN, KANSAS, SATURDAY, MAY 4, 1878.

No. 3.

# THE INDUSTRIALIST

Published every Saturday by the PRINTING DEPARTMENT OF THE

### KANSAS STATE AGRICULTURAL COLLEGE.

TERMS OF SUBSCRIPTION, 75 cents per year, postage prepaid. Ten cents per month, postage pre-paid. Payment absolutely in advance! Paper stopped at expiration of subscription. Address A. A. STEWART, Manhattan, Kas.

### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its tics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

#### FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in ematics are not taught. But it will be noticed in the following course that so soon as the pupil ac-quires working skill in the use of the English quires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

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FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.		
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall		
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology. 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Practical Geometry. 4. Horticul., Landscape Gardening. 5. Organic, Analytical Chemistry. 6. Practical Surveying.	1. Physiology. 2. Rhetoric. 3. Algebra. 4. Practical Agricul (elementary). 5. Physics. 6. Industrial Drawing.	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arithmetic, Book-keeping. 6. U.S. History, Industrial Drawing.		

### WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

### WOMAN'S COURSE

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
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Farm Economy, Special Hygien Geology, Mineralogy. Polit'l Economy, Practical La Zoology. Phys'c'l Geography, Meteorolog. Logic.	Botany, Entomology. Inorganic Chemistry. Industrial Drawing. Horticul, Landscape Gardenin Organic, Household Chemistry. Household Economy.	Physiology. Rhetoric. Algebra. English Literature. Physics. Industrial Drawing.	Drill in English. Drill in Arithmetic. Industrial Drawing. English Structure. Adv'd Arith., Book-keeping. U.S. History, Industrial Drawi

# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

#### Manual Education.

The subject of a manual education is just now attracting unusual attention. Those interested in the general subject of education are beginning to realize that in the development of our educational system, certain facts have been overlooked. Half a century ago the great want of the people was a mental training which should supplement the ability to earn a livelihood by toil. That was the age of "main strength." Skilled labor was little known and little used. Laborsaving machinery had hardly been thought of. The mill-saw and turning-lathe aside, there were no machines of any importance in common use. We were a nation of laborers, compelling a grudging soil to yield a livelihood to a working race.

Those who established the educational system of New England saw that if the laborer would become thrifty and prosperous, he must have enough of "book knowledge" to enable him properly to care for the products of his industry, and in order to become a good citizen he must be made intelligent upon general subjects.

"To write and read comes by nature," said the sage Dogberry, but the fathers of our educational system found the use of the hoe, shovel and axe, and the wielding of the ox-goad, the natural accomplishments of the New England boy, and his great need was a knowledge of "the three R's, reading, 'riting, and 'rithmetic."

They therefore establish the system which has been tried so long, and has proved so successful. No greater mistake can be made than by asserting that "the common school system has failed." On the contrary it is among the grandest triumphs of the century, and has developed a population of intelligent citizens — the sound basis for a popular government. For the greater portion of New England, and of the entire country, any great change in the system would be disastrous. So far as the conditions which called for the establishment of the system continue to exist, the system must be maintained, and they do exist, except in our largest cities. The boy who is reared in a place having less than fifty thousand inhabitants still needs mental instruction more than manual training.

But in our large cities the reverse is true. It isn't possible for the average boy to obtain skilled hands, but skilled brains are thrust upon him. As a rule, the boys who come out of our grammar and high schools, have well-trained brains, and hands that are as useless to earn a living with as they seemed to him in his first declamation. He goes from the school into the world, to earn a living. He is certain as to his mental qualifications, but finds to his astonishment that there is an immense surplus of mere well-trained brains. The supply is so large that if he obtains employment, it is at a very low price, and in exceptional instances only does the boy who has no influential friends succeed in that direction.

He finds that most men must earn their bread, not by the sweat of their tongues and jaws, but in the old-fashioned way, "by the sweat of their brows," the result of hard work. He discovers this wherever he goes. If we turn to the census we are surprised to find that the last census shows but 19,061 government and professional male employes in Massachusetts, while 232,252 men were engaged in manufactures and in the mechanical industries. If we add to those in government and professional employments the merchants, salesmen, clerks, book-keepers, agents, bankers and brokers, we have an aggregate of less than 90,000 men engaged in occupations which do not re-537,087 males above fifteen years of age in the State.

The broadest avenue to self-support, for the average boy, is in the directon of manual labor. But the market for unskilled muscle is as badly overstocked as is the market for mere trained brains. It is skilled hands that are wanted, and these he has not, and that is exactly the difference between the student of the Boston schools and the boy who comes from the country. The latter has had a thousand opportunities for acquiring a certain amount of skill where the Boston boy has one, and will outrun him in the race of the bread-winners. There isn't a well-informed manufacturer who will not, as a rule, hire a country boy for a work-shop, in preference to a Boston

Out of this condition of things comes the necessity for a change in the system of education in our large cities, to give the boys, with their mental instruction, the manual training which will enable them to secure employment and make them valuable as employes. How this can best be accomplished is the problem which is now engaging public attention to a greater extent than ever before.

The first step in this direction was taken some years ago, when drawing was intro-duced into the public schools. To a certain extent the use of the pencil may be counted an accomplishment, and the tendency is to teach it as such. Its great value, however, is to be found, not in making artists of our boys and girls, but in the training which this instruction gives to their eyes and hands. What the next step is to be, no one can tell, but it is certain that another step in manual instruction will be taken before many years. Whatever it may be, it will be experimental, and because of this fact, the thorough discussion of the subject is of the greatest importance. -Boston Commercial Bulletin.

### A Floating Apiary.

A New Orleans man has started a new industry, or rather a novel application of an old industry. He has fitted up in the Crescent City a floating apiary. Two barges have been built which will hold one thousand hives each. The Picayune gives a long account of the enterprise. Mr. Perrine, the bee man, has been in Louisiana eighteen months studying up the bee business and preparing for the grand, onward movement for which he will be ready in a few days. his one thousand colonies from southern Louisana when the honey flowers are in full bloom, to remain but a day or two at a landing, and move up each time to another landing and a fresh field. He thinks the bees of from one to two thousand colonies will take the cream from the country around the landing from one to two miles distant in one or two days. In this manner he expects to move up the Mississippi to St. Paul, a distance of nearly 2,000 miles, where he will arrive about the last of July. Returning, he will halt about two months somewhere above St. Louis, and will reach Louisiana with his palaces and bees in October. It will be his object to take the autumnal flowers at each point in their prime, precisely as he takes the spring flowers in his advance up the river. He expects the early swarms on his boats to increase his colonies to 2,000 in April and May. Twenty hands will be required to work the boats, and it is presumed they will have a sweet time of it. The whole cost is about \$15,000. Stinging remarks are now in order .-Exchange.

THE wheat prospects all over Kansas are bright, and the harvest promises the greatquire a major part of manual labor, out of est yield of any previous year. Our treyear will make times easy in Kansas. more papers than Kansas.

Don't shut out the sun, even though your carpets suffer a little under his ardent gleam. We are more active under the influence of sunlight—can think better and act more vigorously. Let us take the airiest, the choicest, and sunniest room in the house, for our living room,—the work-shop, where brain and body are built up and renewed, and let us have a bay window, no matter how plain the structure, through which the good twin angels of nature—sunlight and pure air - can freely enter. Dark rooms bring depression of spirits, imparting a sense of confinement, of isolation, of power-lessness, which is chilling to energy and vigor; but in bright rooms is good cheer. Even in a gloomy house, where walls and furniture are dingy and brown, we have but to take down the curtains, open wide the window, hang brackets on either side, set flower pots on the brackets, and let the warm sun stream freely in, to bring health to our bodies and joy to our souls.—Exchange.

#### American Products in England.

The English Board of Trade returns for the three months ending March 31, bring out in striking relief the enormous volume of our grain exports during the year. For the same period of last year we sent to the United Kingdom about 5,000,000 of hundred-weights of wheat, valued, in round numbers, at \$15,000,000. This year we have sent 8,000,000 of hundred-weights, valued at \$25,000,000. In the British imports of American flour there is an increase for the three months of \$3,000,000, and in corn, chiefly from the United States, of \$4,000,000. As an offset, however, to the \$17,000,000 of increase on our quarter's exports of breadstuffs to Great Britain, thus accounted for, there is a falling off amounting to \$7,500,000 in cotton. Last year, also, the British receipts of American wheat from the Pacific coast were twice as great as they have been during the first quarter of this year, while the receipts from the Atlantic and Gulf ports have quintupled. The same tables show a uniform decline in the exports of cotton and linen manufactures from England to the United States, and a slight increase in the export of woolen fabrics .-Atchison Champion.

### What Kills.

In the school, as in the world, far more rust out than wear out. Study is most te-His plan is to start with his bee palaces and dious and wearisome to those who study least. Drones always have the toughest time. Grumblers make poor scholars, and their lessons are uniformly "hard" and "too long." The time and thought spent in shirking would be ample to master their tasks. Sloth, gormandizing and worry kill their thousands, where overstudy harms one. The curse of Heaven rests on laziness and gluttony. By the very constitution of our being, they are fitted to beget that torpor and despondency which chill the blood, deaden the nerves, enfeeble the muscles, and derange the whole vital machinery.

Fretting, fidgeting, ennui, and anxiety are among the most common causes of disease. On the other hand, high aspirations and enthusiasm help digestion and respiration, and send an increased supply of vital energy to all parts of the body. Courage and work invigorate the whole system, and lift one into a purer atmosphere above the reach of contagion. The lazy groan most over their "arduous duties," while earnest workers talk little about the exhausting labors of their profession. Of all creatures, the sloth would seem to be the most worried and worn.—B. G. Northrop, Conn.

Kansas publishes 13 dailies, 166 weeklies, 1 semi-monthly, 9 monthlies — in all mendous immigration and a big crop this 189 papers. But eleven States publish

SATURDAY, MAY 4, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

THE annual oration before the Agricultural College will be delivered by Col. J. R. Hallowell, of Cherokee county, upon Tuesday evening, May 21st.

THE probability of a European war has almost become a certainty. Not only England and Russia are arming as rapidly as possible, but the other powers are straining every nerve to defend or enhance their interests. Russia has forbidden the exportation of wheat, and the chances are that the unprecedented surplus in the United States will receive quick rates and high prices. The New York markets show a stiffness that can only be accounted for by such an expectation upon the part of the shrewdest operators, who have the best facilities for estimating the probabilities.

ONE of the most useful and deserving institutions in Kansas, according to our notion, is the State Historical Society; and it is fortunate in possessing the indefatigable Judge Adams as its Secretary. If the State has appropriated anything whatever to it, the amount is small; and the progress which has already been made toward preserving the facts and records of early days is most gratifying and commendable. Very few persons take an interest in such work, and yet it is by the labor of these few that thousands of facts are preserved that would otherwise tumble into oblivion.

# The American Berkshire Record.

The second volume of the above work has been in the hands of the public several months, and to judge from the reception it has received from stockmen and their journals, the Record must be pronounced a growing and a "well-grown" institution. The projectors of this enterprise are entitled to no little credit; and when we consider the obstacles they have encountered, all will pronounce their success well earned. From the fact that the Berkshire Record is the pioneer record of swine, that it deals with the history of a race which had its origin in a foreign country many thousands of miles distant, some of these difficulties may be inferred. Happily, when the crucial test of experience has been applied, these obstacles have been removed, and the Berkshire Record must now be considered outside the region of peradventures.

To the western breeders this most important aid in maintaining the breed in its purity ought to be welcome, indeed. Our herds often are widely separated; they are colonies, or rather missionary stations, among the hordes of mongrels of low degree, by which they are environed. Again, all are separated by many thousands of miles from the parent stock, so that should they lose their identity, or be contaminated by the stock they are so admirably calculated to improve, the herd can only be restored at a great outlay of both time and means. I wish not to be invidious, but it is from this home-bred and thoroughly acclimated stock that we must expect the greatest usefulness, whether we consider the subject from the standpoint of the professional breeder, or pork-maker.

Moreover, it is not unreasonable to suppose that the changed condition as to food and climate found here will produce corresponding variations in all our breeds of foreign origin, thus adding greatly to the cares of the breeder in making his selections. To avoid impure blood on the one hand, and Kansas; its elevator ditto; its streets, stores,

to keep clear of hereditary taint and weakness on the other, the breeder must have that full knowledge of his stock which can only be furnished by a record of pedigrees open to public inspection and criticism. These are some of the reasons, briefly stated, why the enterprise of the American Berkshire Association is of special importance to the breeders of the West.

The American Berkshire Association, unlike many similar enterprises, is truly national in character, and is patronized by breeders of all sections both of this country and Great Britain. It is not a money-making concern, but is earnestly devoted to the improvement of this famous breed of Berkshire swine. In addition to recording pedigrees, much useful work has been done in disseminating valuable information, in the shape of prize essays on the origin and diseases of swine. The Association proposes at an early day to offer valuable premiums at the different State fairs, thus showing its interest in animals no less than pedigrees.

The third volume is now in course of preparation; and I can do no better than to refer you to the very courteous Secretary Phil M. Springer, Springfield, Ill., for any further particulars.—E. M. Shelton.

### Sedgwick and Cowley.

Last week we hugely enjoyed a first visit to Sedgwick and Cowley counties. Reaching Wichita at midnight and leav ing early the next morning, our first im pressions of the general character of the "Great Southwest" as an agricultural re gion were photographed by a bright sun during an exhilarating ride of forty-five miles to Winfield. State Superintendent Lemmon, who is the right man in the right place, and who had been "out west" dedicating new school-houses, was in command and punctuated enthusiastic discussions of plans for increasing the efficiency of the Kansas school system by such remarks as: "How is that for wheat?" "We will see a hundred miles of hedge to-day, just as good as this." "Butler county is off here; Belle Plain there; beyond lies Wellington." "Now how many wheat fields can you count?" "That is Walnut Valley; Arkansas City is yonder; this is Winfield; and here is the best piece of wheat going!"

We had heard a good deal of the "Great Southwest," knew from its papers that it must be a wide-awake region, and fancied that we fairly realized its development; but the whole day was a succession of agreeable surprises - Wichita, wheat; hedge, wheat; timber, wheat; houses, wheat; stream, wheat; cattle, wheat; orchards, wheat; mill, wheat; Winfield, wheat; as far as the eye could see - wheat; with the dazing assurance that all the rest of the "Great Southwest" was either a wheat or some other sort of field. And seven years ago not an acre had been broken! It is a mystery.

Like all the rest of it, Winfield is a mystery - with its fine residences, beautiful churches, papers, stores, banks and people. It believes in itself and proposes to win a greater field than its present one, as is shown by the new houses. We spoke that evening in the "Courier course of free lectures," and the faces of the audience were a guarantee of the capacity and future of the countythat sort of people are not fooled by surroundings, and don't stay long in a poor country. And the next day, on returning, the broad valleys seemed broader, the gentlest possible divides were gentler, the whole landscape was more variegated and beautitiful, and somehow the wheat fields had multiplied themselves!

And then Wichita was yet more of a mystery, with its "only greatest" steam-mill in

papers, banks, residences, elegant churches, trains, hotels, stages, wagons, people, push and faith - all, ditto! A man who doesn't believe in Wichita is shot on the spot, and ought to be; and none of its citizens have ever been shot for that cause. But where in the world did it all come from, anyhow? When? How long does it propose to keep coming, or will it ever stop? Not so long as such soil, farms and people are everywhere about it. Our part of "the trouble," as Mark Twain calls it, was for the benefit of a successful Library Association, before such a bright audience who made things so agreeable; and thereafter, as before, came pleasant meetings with new friends and old among the latter a couple of army comrades in the California Second and Third.

As we write, it all seems like a happy dream, except the fields, towns and people, which are happy realities; and our only regret is that it was all so hurried, as we were off again at daylight. Down there they insist that while the other counties of the Great Southwest" may not be quite so good as their especial locality, yet are they far better than any other counties any otherwheres; that the "Great Southwest" is just the richest section of the grandest State in the Union; that -

Hereafter we stand ready to believe every good thing that can be said about it; we believe it all now - in advance; and the illustrated immigration issues only hint at its growth; even they can't tell the whole of it all at once. We believe in people who believe in themselves, in their business, county and town, because such people are apt to have good reasons for their beliefs; and that sort of people with that sort of reasons are as plenty down there as wheat. At any rate we haven't seen a finer section of Kansas; and if Horace Greeley, of vigorous memory, should go through the State now he would be apt to use his pet phrase and assert that the man who says that Kansas isn't the livest, brightest and best State in the Union, "is a horse thief and liar."

# A Chemical View of the Grasshopper Question.

[From the forthcoming report of the United States Entomological Commission. By courtesy Prof. C. V. Riley, Chief.]

Prof. Charles V. Riley, Chief of United States Entomological Commission, Washington,

DEAR SIR: - In the early part of the month of August last, I received from Mr. Emmet F. Hill, of Spirit Lake, Dickinson county, Iowa, a two-pint bottle filled with the blood and expressed fluids of the Rocky Mountain locust (Caloptenus spretus), and at the same time received your letter of August 2d requesting me to make such examination of the product as should be found possible. In a minute account forwarded me soon after, Mr. Hill states that the bottle of extract sent me was a portion of seven pints of liquid obtained from three-eighths of a bushel of the locusts, weighing altogether twenty-five pounds, by prolonged pressure under an ordinary screw and lever cheese-

The bottle of expressed liquid placed in my possession I found upon examination to contain also a considerable quantity of the macerated tissue of the locust, giving the liquid a somewhat viscid character and dark brown color. Decomposition had also so far set in as to render very rapid work necessary in order to carry out the programme for the investigation which I had proposed. The liquid was markedly alkaline in reaction. Its proximate composition

I determined as follows: Water...... 87.083 per cent. 

 Oil
 .004
 "

 Solid organic mattar
 12.903
 "

 Mineral matter (ash)
 .010
 "

 Total...., 100.00 per cent.

The oil referred to above was obtained by prolonged digestion with sulphuric ether. It is a fine, transparent, reddish-brown oil, of very pungent and penetrating odor; and, although probably of little practical importance, is of great interest, considering its origin and properties. I have still to determine its .ultimate composition, and for convenience in future reference I will venture to designate it Caloptine. The ultimate constitution of the ash of this locust extract I determined as follows:

Silica	12.100	per	cent.
Sulphuric acid	1.153	- "	66
	1.760	6.	66
Chlorine			"
Phosphoric acid	50.715	"	"
Lime	13.260		
Magnesia	8.511	66	66
Potassa	7.420	66	66
	5.083	66	66
Soda		-1	
Copper	Distil	ict	trace.

The enormous proportion of phosphoric acid which the above analysis shows in this ash would not be unexpected, considering the nature and voracious habits of this insect. The presence of copper in perceptible traces is also a very interesting feature of the analysis, when considered in connection with the fact that this metal has also been discovered in the blood of other animals, particularly in the Limulus polyphemus, the ash of whose blood always furnishes a trace of copper. The accidental occurrence of this metal in the present case is entirely precluded by the fact that in the process of carefully expressing the liquid it came in contact with no metallic surface whatever, possibly excepting the contact of a small portion with the thread of the iron press-

Perhaps the most interesting result of this examination was that obtained by the distillation of this locust extract with strong sulphuric acid. In this experiment 150 cubic centimetres of the decomposing juice with 75 c. c. sulphuric acid was distilled at a high temperature, and the product collected through a Liebig's condenser was found to be 145 c. c. of a colorless limpid solution of formic acid (CH2O2), having a specific gravity of 1.0056. Though this acid exists in the red ant (Formica rufa), from which it was originally obtained, and in the larvæ of some species of the genus Bombyx, we are to understand that in the present instance it is generated by the action of sulphuric acid upon the decomposing locust extract. We know that formic acid may be manufactured by similar distillation of a large number of organic materials with sulphuric acid and peroxide of manganese; but in the case of the locust extract at this stage of decomposition, the formic acid passes over with great readiness and in remarkable quantity and purity. Formic acid has a present market value of about sixty cents per ounce. In the form of the free acid, and as formic ether, formates of ammonium, sodium, etc., it has been employed by English practitioners as a therapeutic agent of considerable value. Free formic acid and formate of sodium are frequently employed as laboratory re-agents, and are exceedingly valuable for their great reducing power upon salts of the noble metals - silver, gold and platinum. By the use of this re-agent, a peculiar form of platinum black may be obtained, of great power in inducing combustion. From the same properties formate of sodium constitutes a very convenient re-agent in blow-pipe analysis. The various uses of formic acid in all these departments is undoubtedly capable of very great and valuable extension, should it ever become a common object of manufacture. It is not therefore impossible that the very ready preparation of such large quantities of this acid from the decomposing juices of the Caloptenus spretus may in time have a practical bearing should the only satisfactory solution of the locust problem be found to lie in some profitable disposition of the locusts themselves.

Very respectfully yours, WM. K. KEDZIE. Chemical Laboratory, K. S. A. C.

SATURDAY, MAY 4, 1878.

The Educational Calendar is at hand, and booming!

Architect Carr spent a day on the new building this week, and expressed his satisfaction with the work thus far.

The leaves and things are growing so fast that the bugs stand up on their hind legs and howl "bloody murder!"

Nothing could have been more opportune at the time than the rain which fell on Tuesday and Wednesday evenings.

It is probable that the students will have the pleasure of hearing Chief-Justice Horton at the first hour next Monday.

The Board of Regents of the Agricultural College stands adjourned to meet on Tuesday evening, May 21st, at seven o'clock.

We have succeeded fairly well in trying to be sick this week, and as a business regard it with greater disgust than any other.

We were shown a stalk of rye on April 26th, that measured five feet and one inch. The head was seven inches long. We consider this a pretty fair show for grain in April. It wasn't a good day for measuring, either.

The city schools closed last week, and the primary departments held a picnic on Saturday, which seemed to greatly please the little folks. The schools will occupy the magnificent new building next fall, probably under a new management.

Mr. Henry Bennett, who has the contract for the wood-work on the new College building, placed the joist for the agricultural lecture room this week, and has delivered the frames for the basement windows. He says Mr. Winne has been driving the masonry far more rapidly than he had anticipated.

The Kansas prospect for splendid crops has never been so fine as at present. The drouth which many persons insisted upon having whether or no, and which was persistently predicted on the general average theory, got itself washed out of sight by more than two inches of rain this week. The wheat has moisture enough, and the corn is as happy as a hen with one chick.

The May-basket season has come. Several parties of students were out Wednesday evening distributing baskests at different houses. They report a jolly time, even if it was "awful dark." Several mud-puddles were reported to have been disturbed during the night, to say nothing of the shade trees that were barked, cats frightened, and fence-posts loosened by these perambulators.

After clipping the letter published in the INDUS-TRIALIST a few weeks ago, from Thomas McKee, of Morris county, the Council Grove Republican-Democrat adds the following:

It affords us real pleasure to find one individual in Morris county manifesting an interest in the Agricultural College. No educational institution in the State is more worthy of good words and en-couragement, and we are glad to learn that Morris county is liable to be represented among its pu-

Coming events have been casting their shadows before for some time, and as will be seen by reference to another column the event has transpired. We refer to the marriage of Walter C. Howard and Miss Cassie J. Moore. Mr. Howard was a member of the class of '77 of this institution, Miss Cassie was one of our best students last year, both parties are well and favorably known, and no couple of late has started on life's voyage under more favorable circumstances. They have our heartiest congratulations, and may the Good Father smile upon them in their chosen life-work.

The sudden death of Mrs. Samuel Kimble is one of the saddest things that has happened in Manhattan for many months. Mr. Kimble had been married only a little more than a year, had entered heartily and happily into the work of beautifying his home and preparing to enjoy life, and the future to him seemed very bright and full of pleasure. But the angel of death gathered his loved one into its arms and bore her away. The funeral was very largely attended on Sabbath afternoon, and sorrow and sadness mingled with tears were visible in many faces. The universal regret manifest on every hand was exceeded only by the heartfelt sympathy which all exhibited for the bereaved husband and mourning friends. She is gone.

April 27th, Webster Society called to order by Bernhard Anderson, in the absence of the Vice-President. Mr. Corey was elected a member of

world bright than has the painter." Decision in do not know the definition of a weed; which is, favor of the affirmative. Extemporaneous speaking was spirited. The Reporter was presented by Mr. Thomen, and reflected credit on his editorial ability. Mr. Thomen was appointed for declamation at next meeting. Next question for debate "Resolved, That man will do more for money than for woman." Affirmative, F. Jewell, A. N. Godfrey and T. R. Moore; negative, S. Garr, Bernhard Anderson and Lewis Call. The next number of the Reporter will be presented by A. Beacham. Visitors are always welcome.

The Manhattan Industrialist is three years old, and continues to grow in value, vigor and interest .- Junction Union.

The Manhattan Industrialist is three years old, and little as it is, can "go everywhere," and talks quite plain—very plain, indeed.—Common-

#### ENTERPRISE ITEMS.

A bull, though fastened to a stake with a lariat, was recently carried off by a wind-storm in Marshall county.

Senator Caldwell and wife spent some time in Manhattan last week, and Mrs. Caldwell is yet at Mr. Purcell's.

One of our anglers brought into market last Saturday, four cat-fish averaging about forty pounds each. They formed a nice "string."

On April 25th there were 121 entries made in the Hays City land office, comprising 18,735 53-100 acres, all told. The land business must be lively, indeed, in that district.

Rev. Lloyd delivered a fine discourse on Odd Fellowship, at the Presbyterian church last Monday evening. The receipts were light, about \$20. Rev. Lloyd expressed himself as having had a pleasant visit among his friends. He started for Lawrence Tuesday morning.

### NATIONALIST ITEMS.

We noticed the grain all headed out at the College farm last week.

It is thought the wheat harvest will be in full blast by the first of next month.

It takes nearly all the vacant lots near the avenue now to display agricultural machinery.

Mr. Todd's new house is going rapidly up, and will be a large and handsome house, we judge, by present looks.

The new stock-yard for the K. P. cannot be built until suitable material can be procured, which is not now in market.

The Land Commissioner of the M., K. & T. Railroad has appointed Raphel & Dow agents for the sale of their lands in the vicinity of Manhattan.

There is to be an Old Soldiers' Reunion in Leav enworth on 17th and 18th. All old soldiers in this vicinity who want to attend should hand in their names to J. H. Barnes or Wm. Burgoyne.

We plucked a maple leaf the first day of May thinking we would measure it for the benefit of those eastern friends who are enjoying sleigh We found it was just ten inches and a half by nine inches, from tip to tip. That is an actual fact—a leaf of this season's growth.

On next Monday, the 6th, Mercury will make her transit across the sun, commencing at four minutes past ten o'clock A. M., Washington time, or eight minutes and forty-eight seconds before Lawrence time. It will occupy seven and one-half hours, and can be watched by any one with a colored or smoked glass. It will enter the sun's disk on the east side, and will pass nearly through the center, passing off on the west side.

A ride into the country in almost any direction just now impresses one that the present year promises to be one of great abundance, and one which has not been equalled in our history. The fruit trees of all kinds are full. Wheat in many fields never looked so well; oats, barley, etc., are growing vigorously; and if the seasonable weather continues harvest will be two or three weeks earlier than usual. A great deal of corn is already up and looks splendid, while the gardens have never been so good. Taken altogether we have great reason to rejoice.

### HOED CROPS.

AN ESSAY BY JOHN LEWIN, OF ELEMENTARY CLASS IN PRACTICAL AGRICULTURE.

Every crop depends in a measure upon the crop or crops which have been raised before it, and on the amount of manure the land has received in the meantime. We should study, not how to get the largest yield only, but how to keep the land in the best condition. If I ever become a farmer, I shall observe four general rules, which are: First, never to sell the coarse grains of the farm; second, to keep sufficient stock to consume all this; third, to make the money from the sale of beef, wool, and condensed produce; fourth, never to grow anything which may not be used as food for stock. In this way we get the best results, and the land will improve. By the use of barn-yard manure we get the best crops. The position hoed crops take is a very important one, as by these the land is kept fertile and free from weeds. In some countries in Europe, and especially in England, hoed crops mean mangel-wurzels, Swedish turnips, beets, etc. In looking over English agriculture, we find that Swedish turnips are its foundation.

From hoed crops we get two great benefits: First, we destroy the weeds that come up; second, while hoeing we stir up the ground and make it loose around the roots of the plants. In this country turnips and mangel-wurzels are not grown to such a great extent as in England, yet corn which is grown here ought to take the place of President. Mr. Corey was elected a member of the Society. Debate upon the question, "Resolved, That the scientist has done more to make the in order to keep the weeds down. Some persons parties must act upon business principles. Hence,

any plant out of place. I think it is a very good plan to change the places of certain crops. The proper time to prepare the land for corn is in the fall, and then it should be well manured. Some people think that manure should be piled up into heaps, and allowed to remain there till the spring and then be spread all over the field. This is very wrong; for if it were spread all over the field when hauled out, it would save the farmer a great deal of time and labor. Then again in plowing, some begin in the fall to plow for corn, but the right time is in the spring; and even then if you have from forty to seventy acres to plow, you ought to stop half way and plant half the field first and then the other half, so that the corn may get a good start of the weeds, and also as the ground is very nice and moist at this time. Corn should be harrowed until it is six or seven inches high, and then cultivated every eight or ten days until it is about three or three and a half feet high.

#### DIRECTIONS TO APPLICANTS.

#### TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as possible.

Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in

the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

### RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

### EXPENSES.

There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week s required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and

amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

### LABOR

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.—Manual labor in the recitive property of the labor in the recitions.

ations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice

necessary to dexterity will be required.

Remunerated Labor. — When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between

the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten

#### AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years? course And certainly through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

### RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.
3. Penalty: "Leave!"

PUBLICATIONS. The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to

any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Department, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Educa-tion. Price, 75 cents a year. Address A. A. Stewart, Manhattan.

#### CALENDAR.

Spring Term 1878.—Began Thursday, Jan. 3d, and will close Wednesday, May 22d.
Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

#### TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

For further information apply to Jno. A. Ander son, President, Manhattan, Kansas.

## MARRIED.

HOWARD-MOORE-May 1st, at the residence of Mr. Joseph Davis, in Manhattan, by Rev. J. S. Griffing, Mr. W. C. Howard, of Westmoreland, Pottawatomie county, and Miss Cassie J. Moore, of Auburn, Shawnee county.

### RAILROAD TIME-TABLE.

## KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going East...... 10:50 A. M. Going West..... 5:45 P. M.

FREIGHT ARRIVES. Going East...... 5:45 P. M., and 9:45 P. M. Going West...... 6:20 A. M. and 10:50 A. M. Passengers with tickets are carried on any of

Passengers with the the the above-named trains.

GEO. C. WILDER, Agent.

### METEOROLOGICAL RECORD.

Condensed by Prof. Kedzie from the observations taken at the State Agricultural College, for the week ending May 2d, 1878. Latitude, 39°12'; Longitude, 96°40'; Height, 1,200 feet.

		Te	mpe	rature.	Bar.	of
DAY OF WEEK AND MON	rh.	Max.	Min.	Mean.	Mean Hight.	Inches Rainfa
Friday	126	700	1350	1560	28.65	
Saturday	27	75	39	60	28.71	
Sunday	28	80	46	65	28.79	
Monday	29	73	45	65 .50	28.70	mixe.
Tuesday	30	73	45	61	28.66	.70
Wednesday	1	69	45	64 .25	28.42	1.43
Thursday	2	65	40	55 .50	28.55	.30

Average temperature for the week, 61°.03. Range of temperature for the week, °.45. Rainfall for the week, 2.43.

S. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre streets.

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Poyntz Avenue, Manhattan.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan.

Manhattan Bank.-E. B. Purceil, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

SATURDAY, MAY 4, 1878.

AT a late meeting of the Scientific Association of Ann Arbor, Mich., Miss Lou M. Reed, instructor in the microscopic laboratory, read a paper on the "Microscopic Structure of the Different Kinds of Wheat." The varieties of wheat examined were Clawson, Deihl, Egyptian, Gold Medal, Russian, Schaffer, Tappahanock, Treadwell and Wicks. In these she found that the Deihl wheat had the largest and thickest layer of nitrogenous or nutritious matter; that it contained more really nutritious matter than any other kind of wheat, although close to it and nearly identical with it was the Treadwell wheat. The others, however, were so far removed as to present a striking contrast. The popular Clawson wheat was found to contain the least nutritious matter of all.—Atchison Champion.

A COMPOSITOR in an American printing office has very little exercise except with his fingers, while plying his vocation. This gives him greater time to deliberate over those fiendish typographical errors which so delight the writer of the article, when he reads the piece in the paper the next morning. A type-setter can have an unlimited amount of fun by making "calm" read "clam," "best" "beast," and other little pleasantries of this sort. They do these things better in Japan. The law ordering the removal of the compositor's head for the the removal of the compositor's head for the first offense generally prevents a repetition of the error, although it greatly decreases the typographical force. However, the Japanese characters, with which the papers in Japan are printed, prevent any indolence on the part of the compositor, and therefore much of his type-twisting talents are not allowed to come into full play. A font of type comprises 50,000 characters, 3,000 of which are in constant use, and for 2,000 more there are frequent calls, so that it is no wonder that the proof-readers have to be persons of intelligence and high scholarship. The type is disposed about the room on racks like those in a reading room; and the compositors wander up and down the aisles, setting type and taking exercise at once, and therefore, as a class, they are too much saddened by constant pedestrianism to indulge in typographical gymnastics.-Exchange.

SUPERINTENDENT HARRINGTON, of New Bedford, says that the arithmetic was unwarrantably favored under the old system of education in the public schools. For in the first place, it occupied from a third to a half of the school time - filching opportunity from other branches of equal or greater value; and, in the second place, its service to the mind was greatly misinterpreted, so that a large part of the laborious task-work it exacted was misapplied and abortive. For in addition to those uses of the study which no one will call in question, it was supposed to be of inestimable advantage as an instrumentality for the discipline of the reasoning powers. A little study and less observation would have shown its pretensions in this respect to be utterly unfounded. Every prominent metaphysician who ever discussed the subject has asserted that no intellectual pursuit tends to cultivate a smaller number of faculties in a more limited manner. Ordinary sagacity, indeed, can easily discover that mathematical reasoning does not relate to cause and effect at all, while its demonstrations are entirely different from the steps of a logical syllogism. In the affairs of life, moreover, there is always an element of uncertanity to be taken into consideration when solving practical problems, and the best exercise of the reasoning powers is manifested in wisely managing this element. Now, no such uncertainty pertains to the mathematics. Its conclusions follow inevitably and exactly from their premises. -New York Tribune.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will for the practical education of those who will engage in any of the "industrial professions or engage in any of the "industrial professions or pursuits," as distinguished from the "learned pro-

fessions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

Normal education:	
Teachers	1.13= 1.13
Professional education:	
Ministers	0.43
Lawyers	0.55
Doctors	0.73 = 1.71
Industrial education:	
In agriculture	59.13
In manufacturing and mechanical	14.63
In personal service	13.89
In trade and transportation	9.51 - 97.16
	100.00

AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT.

ENDOWMENT. The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its maintenance.

LOCATION. It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY. The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving and music.

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reckoned as an "industrial."

echanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Dress-Making and Millinery.—Daily instruction and drill in hand and machine sewing: cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

ardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the highest breeding. Address E, M. Shelton, Manhattan,

ty Bonds.—District Boards, Township officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan.

ducational Calendar.—A wide-awake, spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruc-tion and drill by an experienced operator.

Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

Tabits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Mathematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Phonography.—Instruction given in Pitman's Style of Phonography, recommended and in use by the leading reporters of the United States. A course of thirty-five lessons by mail. To any person having a thorough knowledge of short-hand, an honorable and lucrative living is at command. Reference given. For terms and particulars, apply to or address Charles H. Torrington, Manhattan, Kansas.

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club Rates.—The regular price of the Kansas Furmer, an eight-page weekly, edited and
published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same
publisher, fifty cents a year. We we will send to
any address, for one year, the Furmer, the American Young Folks and the INDUSTRIALIST for \$2.75;
or the Furmer and INDUSTRIALIST for \$2.25: or the or the Farmer and Industrialist for \$2.25; or the American Young Folks and the Industrialist for \$1.00.

A gricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

A Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of Pike's Peak," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "The World A School," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher. Topeka, Kansas. Topeka, Kansas.

**Printing!**—Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the con-Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST by the Department furnishes advanced students the Department furnishes advanced students the requisite drill in newspaper work.

A Kansas Text-Book, for teachers and students. Elements of Agricultural Geology, for the Schools of Kansas, by *Prof. Wm. K. Kedzie*, M. S., of the Kansas State Agricultural College.

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact."

In two parts: Part First—Elementary Geology Part Second — Origin and Formation of Soils. Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

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The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the Review and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

33-4w

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MECHANIC'S COURSE.

MECHANIC'S COURSE.

To Mechanics, in addition to the studies of the Farmer's Course, applied Mathematics and Industrial Drawing are more extensively taught. Besides this literary education, the student is taught daily in the particular work-shop of his trade. Special advantages are thus offered to those who mish are education as a Carpenter Cabinet-maker. wish an education as a Carpenter, Cabinet-maker, Wagon-maker, Blacksmith, Turner, Carver, or Engraver. No charge made for the use of tools or materials for class practice.

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CALENDAR: — Fall Term began August 23d, and closed December 20th, 1877. The Spring Term began January 3d, and will close May 22d, 1878.

For further information, apply to JNO. A. ANDERSON, President.

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The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION.

#### FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in ematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

### FARMER'S COURSE

	FARMER	COURSE.	
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# WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it scales to do will fully endorse it. it seeks to do, will fully endorse it.

	WOMAN'S	COURSE.	
FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
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Farm Economy, Special Hygiene. Geology, Mineralogy. Polit'l Economy, Practical Law. Zoology. Phys'c'l Geography, Meteorology. Physici.	Botany, Entomology. Inorganic Chemistry. Industrial Drawing. Horticul., Landscape Gardening. Organic, Household Chemistry. Household Economy.	Physiology. Rhetoric. Algebra. English Literature. Physics. Industrial Drawing.	Drill in English. Drill in Arithmetic. Industrial Drawing. English Structure. Adv'd Arith., Book-keeping. U.S. History, Industrial Drawing.

# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

#### How the Mennonites Burn Grass.

The grass furnace or stove is nothing costly, or complicated, or likely to get out of order. On the other hand it is a contrivance so simple that many will say of it as one man did when he first saw a railroad track: "Nobody but a fool could have thought of so simple a thing!" In a word, as the Irishman made a cannon by taking a large hole and pouring iron around it, so the Mennonite mother of food and warmth is developed by piling brick or stones round a hollow.

Aware that such generalities are too vague, I will make my description more specific, and hope to render the whole mys-

tery plain and level to the lowest capacity.

The material used for the Russian furnace seems unimportant. Some employ common brick, others stone; one builder told me he preferred to mix one part of sand with two of clay. In his judgment this mixture retained heat longest for radiation through a house. The position of the furnace is naturally as central as possible, because heat tends to diffuse itself on all sides alike.

Furnaces will, of course, vary in size with the size of a house. A good model is this: Length, five feet; height, six; and width, two and a half. The bricks to be employed are about six hundred, unless the walls be of extraordinary thickness. The structure may be said to have six stories; 1, the ashbox; 2, the fire-box; 3, the oven; 4, smoke passage; 5, hot-air chamber; 6, smoke passage, either to chimney or to a drum in an upper room.

Many questions have been asked me as to the size of the fire or fuel-box Its length is about four feet, its width and height, each, about a foot and a half. It is asked, "How is the grass pressed and prepared for the fire-box?" It is not prepared at all, but is thrust in with a fork as one would throw fodder into a rack. People suppose they must be putting in this fuel all the time. This is not the fact. At the house of Bishop Peters (48x27 feet), which is a large one for a new country, the grass or straw is pitched in for about twenty minutes twice, or at most three times, in twenty-four hours. That amount of firing up suffices both for cooking and comfort.

It will be observed that the heated air strikes the oven, and also the reservoir of est labor is honorable. But in practice this graph. hot air both above and below, and that no is reversed. Few Americans in prosperous particle of hot air reaches the chimney till after turning four corners. It works its passage. The iron plates, doors and shutters are such as any foundry can furnish. They are inexpensive. In a case where I enquired the cost, it was \$5.

Near a score of years ago, when I first honored. His calling often places him out pushed west of the Missouri, my feeling of the pale of fashion and society, unless he was, "What a corn and wheat growing capability here runs to waste! What myriads of buffaloes have been shot merely for the dainty of their tongues!" So now in the light of Mennonite experience, many a Yankee in Nebraska sees that he has thrown away a cooking and warming power that had millions in it. He long ago laughed at his father smothering bees in order to secure their honey - and at his neighbor who put into his stove the corn which he might have sold, the same year, for a dollar a bushel. He now laughs with the other side of his mouth at himself for burning outdoors that prairie produce which, if burned indoors, would have saved him to many a dollar. He who thus laughs will need no preaching to make him square his practice in the matter of cookery and house-warming according to the Mennonite plan. His faith will be stronger than ever, that the Providence which created quinine where chills prevail, numerous, and provided buffalo chips for ropes and look on. It is said that the prac- change.

the Indian in the far West, has there also furnished fuel for the civilized settler; "grass of the field, which to-day is and which, if he makes full proof of it, will be

sufficient for all his needs.

Straw and old prairie grass have been thought as useless as grave-stones after the resurrection. But the recent utilizing of them is in keeping with the spirit of the age — with developing patent flour best suited to human uses from that part of wheat planing-mills so constructed that they feed their boilers with their own shavings. Indeed, it surpasses all witty inventions in its line, unless it be the proposal, just now started, for turning even tramps to an account by clapping them into the regular army and sending them among Indians to scalp, or to be scalped, no matter which.

Many Nebraska Yankees were made hap-

household blessing to an outsider seems capable of but little improvement. But the Yankee will improve it, for he has improved everything else he has borrowed - everything from watches to steam engines, and even religion. In fact his betterments in the last article are said to be manifold,

# As if religion were intended For nothing else but to be mended.

Thus Yankee cuteness may render the Russian stove simpler, smaller, cheaper of better material of more elegant design-of more economical combustion. But as now used by Nebraskan Mennonites, it is worthy of all acceptation by a prairie pioneer. A Hibernian, hearing of a stove that would save half his wood, said he would buy two and save the whole. The save-all that he was after, he would have found in a Mennonite grass-burner.—James D. Butler, in the Chicago Times.

### Our American Boys.

Advertise for a clerk or book-keeper, occupations overstocked to repletion, and the large majority of the applicants are Americans. Advertise for a gardener, a practical farmer, blacksmith or mason and the chances are that the less numerous applicants will be of foreign birth.

We have among us a theory that all honcircumstances will make their sons skilled as carpenters, blacksmiths, masons, or in a scores of other so-called minor callings. The "honor" appertaining to a trade of almost any description exists only as a sentimental fiction. The mechanic is not really combine with it a talent for politics, joins the legislative or political rings, becomes a contractor and buys his fellow-craftmen at the lowest possible rate, as he would ma-

The average American father covets for his son position as a ruler and a statesman. Every American boy starts in life for the Presidency. The average duration of a generation of men is said to be thirty odd years. In such period only seven and one-half American boys may attain the "highest office in the gift of the people." The rest must be content with such minor positions as Governors, Senators, Assemblymen, Collectors, Custom-house Weighers or Con-

The great gate and the chief entrance to the goal at Washington is the law. Entered on the list as a lawyer and the course is open to the American boy. But the ma-

tical Prince Albert made each of his boys learn a trade. The Prince of Wales has, it is reported, skill as a shoe-maker. Should to-morrow is cast into the oven,"-a gift he, through revolution, become a wanderer, as were Louis Phillipe and Louis Napoleon at one period of their lives, he will have his cobblership to fall back on. Here he might, as the Fifth Avenue shoe-maker, soon accumulate a fortune.

But there is little use in advising the American father to have his son taught a trade. There is little encouragement for which had been the food of hogs, and with the young man to enter on any calling which may stint him out from the smile of fashionable society. He can flourish only in the ranks of law, medicine, divinity, or as a partner in a wealthy firm, or exist and dawdle as a rich man's son. Meantime, the men who are doing the work of the country, laying its rails, forging its iron, tilling its soil and manning its marine are largely foreigners. Two-thirds of the mates in what merchant service is left us are of forpy last winter, thanks to the Mennonite what merchant service is left us are of forstove; more will be next winter. That eign birth. The native-born American is known chiefly as President, Senator, Govenor, or - tramp. Speak to the next tramp you meet on the street and see if he is not one of "Our Boys."—Exchange.

> A MAGNETIC clock, invented by Daniel Drawbaugh, Middletown, Cumberland county, Penn., is sufficiently remarkable to be worth description. The magnetism of the earth, an inexhaustible source of power, is made to oscillate the pendulum; and the simplicity of all the works gives an assurance of the least possible friction. At a certain point the very movement of the pendulum itself shuts off magnetic connections with the earth, but at another point restores the connection, thus securing the conditions necessary to produce its oscillations. The works are so ingenious and simple that it is no wild assertion to make that, were it not for the unavoidable wearing out caused by even the smallest amount of friction, the clock would run as long as the solid earth endures. This clock is hung against a board partition, with all the works exposed, subject to the jarring of machinery and obstruction from dust settling upon it, yet, since March 1, 1877, it has been running continuously and uniformly with only slight reported variations, as tested by transit observations at noon.—Harrisburg (Pa.) Tele-

THE Manufacturer and Builder makes a minute calculation of the expense and advantages of the electric light, as compared with other methods of illumination, and concludes that it is seven times cheaper than gas, motive power not included; and four times cheaper, taking into account the cost of driving.

My young friend, I see you have used several French expressions in your letter. I think if you will study the English lan-guage, that you will find it capable of ex-pressing all the ideas that you may have. have always found it so, and in all that I have written I do not recall an instance where I was tempted to use a foreign word, but that, on searching, I have found a better one in my own language.—Bryant.

ONLY four per cent of the children of the public schools of Boston are in the high schools; all the rest are in the grammar and primary schools. It may be said, without danger of contradiction, that in no State in the Union is the number of those pursuing any branch that by courtesy might be styled a part of higher education, greater than five per cent of those at school. The high and normal schools, the academies and colleges, may give us the officers for our edchinists, gardeners, masons, blacksmiths ucational army, but the officers exist for the as well as perfumes where negroes are most and carpenters may only stand without the army, not the army for the officers.— Ex-

SATURDAY, MAY 11, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

THE sermon to the graduating class will be delivered by the President on Sunday, May 19th, probably in the evening.

The term examinations will be held on Monday and Tuesday, May 20th and 21st, as noted in another column.

The Board of Regents will meet at the Adams House on Tuesday, 7 P. M.

The orations of the graduating class, and the annual oration before the College, by Col. J. R. Hallowell, of Cherokee county, will be delivered Tuesday evening.

PROF. J. WHERRELL, formerly of Leavenworth, has removed to Paola, where he will open the first session of the "Kansas Normal School and Business Institute" on Wednesday, September 4th, 1878. Prof. Wherrell's well-won reputation as Principal of the Leavenworth Normal School is the best guarantee of the new enterprise. He has leased the fine school building at Paola. We wish him the best success.

Col. John A. Martin, as President of the Kansas Editorial Association, has arranged for a very pleasant excursion to Putin-Bay. Apart from the prospective enjoyment of the trip, there is solid sense in sending a train of live Kansans through communities that are predisposed to "come West" anyhow. And if any other class of men can talk "Kansas" more effectively than its editors, we would like to see them.

Not less than 100,000 immigrants will become citizens of Kansas this year, and many of the shrewdest judges place the number at 150,000 and 200,000. From every town in the State comes the same story of "houses all full," and "heavier land sales than for years." If the immigration of last year was 100,000, the present indications would warrant the expectation of 200,000 this year. With an average yield from the present crops, the immigration next year will certainly be far beyond all precedent.

### Term Examinations.

We repeat the standing invitation to the public to be present at the term examinations, which will be both oral and written and will be held as follows, on Monday and Tuesday, May 20th and 21st:

MONDAY.

8:40 to 10:20.—\*Commercial Law, Prof. Ward;

\*Household Chemistry, Prof. Kedzie; \*Practical
Agriculture, Prof. Shelton; †Practical Horticulture, Prof. Gale; †Drill in Arithmetic, Prof. Platt;

†Industrial Drawing, Prof. Walters; Carpentry,
Capt. Todd; Printing, A. A. Stewart; Telegraphy,
W. C. Stewart; Sewing, Mrs. Cripps; Instrumental
Music, Miss Steele.

10:20 to 12:00.—\*Logic, Pres. Anderson; \*Rhetoric, Prof. Ward; †Physics, Prof. Kedzie; †Bookkeeping, Prof. Platt; †Industrial Drawing, Prof. Walters; Carpentry, Printing, Telegraphy, Sewing, Music, as above.

2 to 3:40.—\*Surveying, Prof. Ward; † Book-keeping, Prof. Platt; † Drawing, Prof. Walters; Carpentry, Printing, Telegraphy, Sewing, Music.

TUESDAY.

8:40 to 10:20.—\*English Literature, Prof. Ward;

\*Chemical Analysis, Prof. Kedzie; \*Zeology, Prof.
Gale; †Drill in English, Prof. Platt; †Industrial
Drawing, Prof. Walters; †Household Economy,
Mrs. Cripps; Carpentry, Blacksmithing, Printing,
Telegraphy, Sewing, Instrumental Music.

10:20 to 12.—\*Commercial Law, Prof. Ward; \*Agricultural Chemistry, Prof. Kedzie; †Book-keeping, Prof. Platt; †Industrial Drawing, Prof. Walters; Carpentry, Printing, Telegraphy, Sewing, Music.

\*Oral the first half, written the second half.
†Written the first half, oral the second half.

Summer Care of Swine.

The unusually low price of pork and its products promise to work much more than a present injury to the business of pork making. Many farmers who have hitherto 'summered over" large numbers of pigs for the fall and winter feeding, will be tempted by the existing low prices to give up the business entirely or to curtail it very materially. Indeed, a large number of cases of this kind have already come to our notice, and should the tendency prove widespread we may reasonably look for a short pork crop for 1879, accompanied by a sharp advance in prices. The history of swine raising, and measurably of sheep husbandry, in this country has been but a succession of these wide fluctuations in values, caused chiefly by the comparatively short time required to produce a crop of either wool or pork. Now, all this is most unfortunate for the farmers and the country, and its general tendency has been to greatly lessen the profits of pig raising as compared with cattle raising.

While the pig is an indispensable adjunct to every well-managed farm, and often profitable beyond any other department of farming, it is nevertheless true that taking the years together cattle are by far the most profitable stock kept by the farmer. There are several reasons for this, the principal one being the fact that cattle are three or more years in coming to maturity, and consequently their numbers and prices are not subject to fluctuations as are the more early maturing races. When our farmers have learned that their business is not a speculation but a systematic round of operations, one part being often of little profit except as it supplements another, and when they put in practice that old truth that safety is found always in a variety maintained uniformly through the years, then and not till then will pig raising in point of profit equal or exceed cattle raising.

In order to this more systematic management of swine, we need to give much more attention to the animals during the summer season than they usually receive. In fact, it is the long season, when the animals are in store condition, rather than during the time of fattening, that the principal losses occur in pork making. To fatten a healthy pig is little more than a question of shoveling corn, but to keep the pig healthy and thriving during the long summer term will require not a little of both skill and judgment.

In the first place let it be understood that the pig is far from the filthy brute that many suppose him to be. We hesitate not to say that of all domestic animals not one is more cleanly in habits than the pig. He requires clean, roomy, grazing ground just as much as cattle or horses; and when confined to a close, filthy "pen," he suffers no less than they would under like circumstances. An ordinary roomy prairie lot, having a brook flowing through it, is almost an ideal pasture for swine, and in our judgment it greatly surpasses the famous "woods pasture" which our pig raisers so highly esteem. The great advantages of prairie land as a pasture for swine consist chiefly in the great variety of plants which it contains, and this we are satisfied much more than compensates for the shade found in woodlands. If our farmers will tear down the filthy pens now so generally used and substitute for them a roomy prairie field, they will be surprised at the healthfulness and thrift of their herds no less than the cheap rate at which they are summered. -E. M. Shelton.

DENVER had a snow-storm last Tuesday, and at same date Kansas had strawberries. Nice country out there. Aids in the Study of the Metric System.

In reply to letters inquiring for aids in the study of the metric system,— the aids of which I spoke in a former article,— I can give the following information:

There was incorporated about two years ago in Boston an association of teachers and others interested in the introduction of the metric weights and measures, under the name of the American Metric Bureau. Article II of its constitution reads as follows: "The object of this Bureau shall be to disseminate information concerning the metric system, to urge its early adoption, and to bring about actual introduction wherever practicable. To this end it will secure the delivery of addresses; publish articles; circulate books, pamphlets and charts distribute scales and measures; introduce the practical teaching of the system in schools; and in all proper ways, as far as the means at its disposal will allow, the Bureau will urge the matter upon the attention of the American people till they shall join the rest of the world in the exclusive use of the International Decimal Weights and Measures." Well spoken!

This Bureau includes among its members many of our most prominent educators, and its numbers are rapidly increasing. Within its brief existence it has already distributed over the country several millions of different measuring units, and other aids to the introduction of the system; and all this at wholesale cost price, or less if its funds created by voluntary contributions of the friends of the system allowed it. No factory or firm has any business interest in the work, other than the interest felt by all the life members who have generously loaned the capital necessary to have these things manufactured No member of the Bureau receives any compensation whatever for his official services. An office has been opened at 13 Tremont place, Boston, from which a monthly pamphlet, the Metric Bulletin, is issued Branch offices are being opened in each State, where all persons interested are invited to call or to write freely in regard to any matter pertaining to the work of the Bureau. The address of the branch office for Kansas is F. W. Giles, Topeka, where any of the necessary "aids" may be had or

To give descriptions and prices of all the different aids would require several pages of the Industrialist. The articles consist in a number of pamphlets, some setting forth the advantages and the possible disadvantages of the system, others giving its history, others explaining the best methods of teaching it. A set of finely-engraved or lithographed wall charts, showing the measuring units full size, have been also prepared. The units themselves are of a variety to suit all tastes and purposes. Several thousand styles and kinds may be had. School sets, consisting of all the necessary units and charts, are sold at prices that may be met by any enthusiastic school

The Metric Bulletin, the monthly publication of the Bureau, is sent to any address for \$1.00 a year, and should be in the hands of every teacher. It contains a record of the wonderful progress of the meter in all parts of the world, announcements of new metric aids, proceedings of the meetings of the Bureau and its different committees, and other kindred topics. In short, it is a lively little sheet. The first volume may be had, neatly bound, for only twenty-five cents. The Bulletin will give all the information wanted.

Of the progress which the meter is making among us, I will speak in a future article.—J. D. Walters.

Paris and Back.

The rush to Europe this season is beyond all precedent. Not only are many more vessels sailing than ever before, but each is carrying a larger number of passengers, and the heaviest travel has not yet begun. The standing attractions presented by the Continent are powerful, and in addition this season are those of the Paris exhibition. A round-trip ticket from New York to London, Paris and return, first cabin of steamers and second-class by rail, can be had at from \$102 to \$150, according to the line taken. The Paris hotels are charging from \$2 to \$5 per day, and the Grand will enable Mr. and Mrs. Shoddy to get clear of \$20 or \$50 per day, if they are spoiling for "style." But without the practice of any particular economy, all reasonable expenses of living and sight-seeing can be covered by \$5 per day, or \$150 per month; so that, according to the latest letter-writers, you can make a trip of fifty or sixty days at a cost of \$300, and much less if you desire.

The special advantages offered by "Cook's tickets" decidedly commend them to sensible people, for two good reasons. First, they save a deal of bother by being through tickets, and, as in the case of a through ticket to New York, save the holder from the annoyance of buying at way stations; and, second, they are fifteen to forty per cent cheaper than the same accommodations bought at the railway offices. Buying a fresh ticket whenever you strike a new State or county is bad enough when you speak the language of the country, but an enraged nuisance when you don't. It may calm the tuft-hunting souls of some American snobs to know that English noblemen use them on the Continent, and that the Emperor of Brazil did all his traveling in both Europe and America on Cook's tickets. They are especially convenient to the tourist "going it alone," who starts when he gets ready, stops off where he pleases, and stays as long as he wishes. Should he desire to change his route, he can exchange the tickets for new ones at the same rate, or return them at a discount of ten per cent.

The hotel coupons are different from the tickets, and while they are only sold to the holder of the tickets, yet he need not buy them unless he wishes. Their advantage is that of the American over the European system of hotel accounts. Here we pay so much a day, which includes everything; there you pay for each item separatelyroom, breakfast, lunch, dinner, attendance, candle, soap, boots, bows and sneezers. And when you can't speak the language, you pay double. Cook's coupons stop all that, as they are good at the designated hotels for all charges. Their cost for England, Ireland and Scotland is \$3 per day; for Paris, \$2.50, \$3 or \$5, according to hotel; and for the continent, \$2 per day. You cannot otherwise get the same accommodations at the same price, but you can live cheaper in apartments and restaurants, if you know how and will take the bother.

By purchasing the tickets and hotel coupons it is easy to determine before you start exactly what your traveling and living will cost, and a dollar or two a day will meet all other ordinary expenses. We have been studying up the "European question," and after reading an armful of "Bædeker," "Murray," and other guide-books, have struck no mode of obtaining the exact knowledge which the tourist desires in regard to expenses equal to that furnished by Cook's "Excursionist." Patients afflicted with the European fever would do well to request a copy from Cook, Son & Jenkins, 261 Broadway, New York.

SATURDAY, MAY 11, 1878.

Strawberries this week. Only think of it!

Professor Platt will preach at the Presbyterian church next Sunday morning.

The weather this week has been superb, and the heat especially has put in its best licks.

One more week and the term will be over, except examinations. It has been pleasant, efficient, and on the jump.

Joe Williamson informs us that his sister, Miss Lizzie, of Royal Center, Indiana, was married to a Mr. Troutman, of that place, a short time since. This young lady attended the College a year ago.

We had a very pleasant visit from Judge and Mrs. Horton last week, which had been promised many months ago. We persuaded the Judge to favor the students with a lecture Monday morning, which was hugely enjoyed. Will furnish an abstract in our next.

The new building is progressing finely. The water-table is in place and the walls ready for the joist. Part of the lumber has arrived and the rest is looked for daily. Mr. Bennett will likely have the joist set next week, after which Mr. Winne will drive the stone-work.

A State temperance convention has been called by the leading temperance men of the State to meet at Olathe, on Tuesday, May 14th. It is desired that every community in the State, and especially every temperance organization, have one or more representatives present on that occa-

A game of base-ball was played between the College and town boys last Saturday, the former getting badly scooped.—Nationalist.

See here, Mr. Nationalist, we can't stand it. The College boys didn't play with the town boys, but with the "Plow Boys," a club from Pleasant Run; and instead of being "badly scooped," the score stood 55 to 23 in favor of the College club. Our boys have had no base-ball organization this year, but are able without much practice to "badly scoop" any of your ordinary clubs. When the College nine was in good order, the champion club in the State, the "Westerns," of Topeka, had to play eleven innings to beat them, - and then by only one tally, the score showing 18 to 17 in favor of the "Westerns." Of course, the error was unintentional.

The Webster Society met in Webster Hall, Saturday night, May 4th, 1878. Society called to order by President. Mr. Reeve led in prayer, after which a lively and animated debate took place upon the question, "Resolved, That men will do more for money than for woman." Decision in favor of the negative. Next in order came extemporaneous speaking, in which all participated with a hearty zeal. The person on for declamation being absent, the order was passed over until next meeting. A motion made to the effect that the Society change the time of meeting from half after seven to eight o'clock, was carried unanimously. Mr. A. N. Godfrey was instructed to purchase Prentis' "Kansan Abroad" for the Society library. The Society then adopted the following question, " Resolved, That the Western Hemisphere can exhibit more natural curiosities than the Eastern Hemisphere." Affirmative, M. A. Reeve, S. C. Mason and W. E. Rollings; neg ative, B. Anderson, Irving Todd and J. A. Bell. The Webster Reporter will be presented next Saturday evening by A. Beacham. A cordial invita-ANONYMOUS. tion is extended to all.

### LABORATORY NOTES.

The Bell Telephone Company, through their general agent, Mr. H. H. Eldred, of St. Louis, have placed in the physical laboratory a pair of their instruments, which they generously furnish with-

Mr. Bernhard Anderson, a student in pharmacy in the laboratory during ths term, is now completing his work, and exhibits as a result a collection of over fifty bottles of very handsome preparations. Mr. Anderson has become a very neat and skilled workman.

The class in agricultural chemistry is now concluding an excellent term's study by work in the quantitative laboratory in the analysis of soils. The large series of farm soils collected by the department in the last three years from all parts of Kansas, as well as from other States, give an abundance of material for work of this character.

Under the direction of this class also some very interesting experiments in water culture have been in progress during the latter part of the term. Oat, barley and corn plants have been germinated upon moist cotton and then placed in solutions which have been carefully prepared by weight, and which are supposed to contain all materials essential to plant growth. The "crops" are all doing well, and when full grown will be analyzed to determine amounts of each element of plant food absorbed by each. plant food absorbed by each.

The following students reached an average grade of ninety-five or over in the monthly examination for April:

Allen: Wirt S. Myers.

Atchison: George Storch. Barton: Wm. H. Mitchell, Crume Pegan.

Cherokee: Alice Allen, Hattie Allen, Geo. Theis. Clay: Jasper Cowell, Alice Spooner, Matthew

Spooner. Davis: Elisha Burr.

Dickinson: Wm. Day, Bion Smith, Amos Wilson, Nena Wilson.

Franklin: Flora Beckwith.

Greenwood: Estella Bouton, A. N. Godfrey. Jewell: T. J. Wyland.

Johnson: Thos. R. Moore.

Lyon: Mark Reeve, Clement Smith.

Marshall: Augustine Beacham, Etta Thompson. McPherson: Bernhard Anderson, Charles Lund-

Missouri: Henry F. Coe, Jennie Coe.

Nemaha: Wm. McBratney. New York: H. W. Thorne.

Osborne: W. K. Eckman.

Ottawa: Silas C. Mason, Wm. E. Rollings.

Rice: John Mann.

Riley: Arthur Blain, Georgie Goodwin. Mina J. Hosmer, Fletcher Jeffrey, William Jeffrey, Emma Parish, Grace Parker, Augustus Platt, Grace Strong, Cora Ulrich, Ella Vincent, Rowena Whaley, Willie Whaley, Clarence Wood.

Sedgwick: Emma S. Cook. Shawnee: Lewis Call.

Wilson: Noble A. Richardson.

#### FARM MACHINERY.

AN ESSAY BY C. O. SMITH, OF ELEMENTARY CLASS IN PRACTICAL AGRICULTURE.

The improvements in agricultural implements constitute much of the difference which exists between ancient and modern agriculture; as rotation of crops, manuring, fallowing, and many of our improved processes were practiced by the ancients. Nearly all of our farm machinery is of quite recent origin, as may be shown by glancing at their history. For instance, the threshing-machine first came into general use about fifty years ago; the horse cultivator and grain drill were invented about the seventeenth century; the first cast-iron plow was made in 1763; and reapers and mowers have been in use only during the last forty

It is only by the use of these machines that farming can be as extensively practiced as it is. If all modern farm implements could by any means be suddenly blotted out of existence, agriculture in this country would at once sink to a very low level. Probably not one-half of the ground now cultivated could be tilled, simply because there are not half enough people in the West to till this immense acreage with the implements used by the ancients. This being the case, it behooves every farmer to obtain and keep upon his farm such machinery as will best suit his purpose; and in selecting implements a knowledge of mechanical principles is useful.

In selecting a machine a farmer should keep in mind two principal objects: First, to see that each part is made according to mechanical principles, and has its required strength without too much weight: second, to get as simple a machine as possible. In judging of the strength of his implement, he must take into account the use to which it is to be put, and not judge it by some ideal standard. It should be strong enough to withstand the severest strain required of it. By neglecting these points in purchasing machinery, thousands of dollars are annually lost by the farmers of this State. A farmer may purchase a machine which runs easily and does the best of work upon nice, level ground, and yet have a machine not at all adapted to his purpose, because it is not capable of performing the heavy work for which he wants it.

Complicated machines should always be avoided upon the farm, the reason being that these working upon rough, uneven surfaces are constantly liable to fractures and injuries to which a more simple machine would not be subject. The simplest machines are the best and become the most popular. Generally, too, those machines which are not of the lightest draught, but are a little heavy give the best satisfaction, as they, being strong in all their parts, are less liable to injury.

### NATIONALIST ITEMS.

We had a taste of ripe strawberries this week. The new bell for the school-house has arrived. Miss Ella Child is teaching satisfactorily on Deep

The loads of grain are coming in at a rapid rate. Good crops in prospect.

Eight cars of stock were shipped on Tuesday, and as many more on Wednesday. The maple moth has put in an appearance.

Build your bonfires in the evening. There are more birds in this vicinity of all

kinds this year, than ever was known before. Geo. Wake writes a friend that Ellsworth will do as a place of business, but don't begin to come up with Manhattan as a place of residence.

Our band has been reorganized. John Walters is

the leader, and is a good one. The organization deserves the hearty support of the community. Custar Post, No. 6, G. A. R., is arranging for "the greatest reunion of old soldiers since the war," at Leavenworth, on the 17th and 18th of May.

Rev. Wm. Campbell has gone to Iowa on a visit, and will probably remain a couple of weeks. The church here is building up quite rapidly under his administration.

#### ENTERPRISE ITEMS.

Cherries will soon be ripe.

W. P. Higinbotham has a new Yale time lock on the safe in his bank.

Immigrants pass through the city nearly every day, going west to settle.

The Blue was up last week, but has subsided. The Kansas has now taken a spell of rising. John Merrifield and Wilber Brous have formed

a partnership to do carriage and sign painting. The directors of the K. P. passed down the road the other night and stopped off for supper at the

C. F. Briggs has enclosed his yard on the avenue with a nice picket fence, and improved it with ev-

We received a radish last Thursday from Mr. E. Lofinck's garden, which measured nine and one-half inches in length. Mr. L. has the finest garden in the city.

There is a large quantity of corn being brought in now, and it is in great demand. The freight war is what makes the difference. Blind Tom is a prodigy, no mistake. The enter-

tainment given at this place last Saturday evening has rarely been equalled, cerainly never excelled, in Manhattan. Peak's Hall was comfortably crowded, and all seemed to think that they had received a good return for the money invested.

Blue-grass and clover, especially white clover, are taking possession of the vacant places by the wayside all over the city, and from the campgrounds of travelers who have scattered a few seeds from their wagons, the stock is spreading, and bids fair to possess all the region in due time. Lucky if we do not get with these welcome growths some pestiferous weed that shall annoy us year after year. But the evidence of the growth by the wayside convinces us that tame grasses will flourish in our soil.

We can now see why our friend Lew J. Best refused to accept of the appointment as one of the Regents of the Agricultural College. He had baited his hook for something else, and now gets the Receivership of the Kirwin office.—Valley Falls

#### DIRECTIONS TO APPLICANTS.

### TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be upplle to retain position if admitted.

must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as possible.

### GRADES.

Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so.
The work of grading is strict and uniform in all
the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in

the College wholly depends upon his own action.

The course is based upon the determination to
make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

### RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

### EXPENSES.

There are no charges whatever for enrollment, There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and

is required from female students for tultion and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the

student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students 'desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

#### LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.—Manual labor in the reci-ations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held par-ameunt in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. — When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour. cents an hour.

#### AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of offer; but in view of the fact that during each of the last three years we have had more to do than the last three years we have had more to do that the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

### TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after changle for enrollment. after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

# RAILROAD TIME-TABLE.

### KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going East...... 10:50 A. M. Going West..... 5:45 P. M.

## FREIGHT ARRIVES.

Going East..... 5:45 P. M., and 9:45 P. M. Going West...... 6:20 A. M. and 10:50 A. M. Passengers with tickets are carried on any of the above-named trains. GEO. C. WILDER, Agent.

### METEOROLOGICAL RECORD.

Condensed by Prof. Kedzie from the observa-tions taken at the State Agricultural College, for the week ending May, 9th, 1878. Latitude,

		Te	mper	ature.	Bar.	00
DAY OF WEEK AND MONTE	τ.	Max.	Min.	Mean.	Mean Hight.	Inches Rainfal
Friday	3	640		53°	28.73	
Saturday	4	65	37	53 .50		
Sunday	5	70	52	63 .50	28.50	1
Monday	6	85	55	75 .25	28.26	
Tuesday	7	73	48	64	28.48	Die I
Wednesday	8	72	38	60 .25	28.84	
Thursday	9	64	33	54 .25	29.03	1

Average temperature for the week, 60°.53. Range of temperature for the week, 0.52.

S. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Poyntz Avenue, Manhattan. 19-3m

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26

Jno. W. Webb, Cashier. A general banking business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

SATURDAY, MAY 11, 1878.

THIRTY years ago, when Bayard Taylor's Views Afoot," or "Europe Seen with Knapsack and Staff," came out, the London Athenœum, reviewing the work, said: "Mr. J. Bayard Taylor is a printer's apprentice, of whom America may be proud." The printer's apprentice is now United States Minister to Germany. In his first book, which was eagerly read at the time, he showed Americans how cheaply one can travel in Europe, his own expenses during a two years' trip having not exceeded \$500. -Exchange.

• In 1854-55 Congress appropriated \$30, 000 for the importation of camels to this country, and the store-ship Supply, under command of Lieutenant David D. Porter, was sent to the Mediterranean to obtain them in Africa and the Levant. Fine specimens, thirty-three in all, were selected; one died during the voyage to this country; the rest were landed in Texas. In recent years little has been heard of these animals. The Arizona Miner states that four camels, three old and one young, all quite tame, have been running at large near Mineral Park. One of these is so old that it is supposed to belong to the stock originally imported. The Hon. George P. Marsh wrote a small volume on the camel, showing its probable usefulness if introduced into this country, shortly after the animals were brought to Texas. Camels are now bred in that State, and the business is said to be profitable. They feed on cactus and sage-brush, and prefer such food to that which ordinary cattle require. A Texas camel-breeder says that any of them, if well broken for service, can travel 100 miles a day, and one in his herd has gone over 150 miles in twenty-four hours. They seem to be fully acclimated, and are represented as docile.—New York

### Steam Cultivation.

The present tendency of agriculture - and it is an unavoidable one to some extent, however much we may object to it - is the increase in number of large farms, and the diminishing of that of small ones, which are gradually absorbed into the former. This is very apparent in the latest reports of the census of the State of New York, and to the observation of those who keep a close watch upon events occurring close about them. The consequence is that the large farms are being worked upon a more methodical system, with all the appliances of modern machinery. A small farm can not thus be worked with profit. The owners of the large farms must shortly begin to think of using steam in their cultivation.

That farms of 500 to 1,000 acres can be more profitably cultivated by steam than by horses is evident if we take the testimony of foreign farmers, and trust to the experience derived from every other mechanical business. The saving gained in England upon a 1,000-acre farm is equal to the cost and feed of eight horses; the cost of the apparatus being about \$3,500. The gain in time of work is very important, one set of steam tackle doing the work of 30 horses, a day's work being 20 acres with the seven-tined cultivator, working nine inches deep, or the set of four or five plows. It is the first step which costs, and we are waiting for one unusually enterprising man to make a beginning, and show that a large farm can be worked by steam with economy and advantage. When this is done other large farmers will soon follow his example, and smaller farmers will either join in procuring the apparatus or hire it from those who have the machinery, just as they now hire steam threshing-machines. If the way to do it is once clear, every thresher-man will be considering the propriety or profit of procuring an engine that will do both these works .- New York Times.

### Industrial Education.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college medicine or theology; and an agricultural college for the practical education of those who will for the practical education of those who will engage in any of the "industrial professions or engage in any of the "industrial professions or pursuits," as distinguished from the "learned propursuits," and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photographic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Metallurgy, Chemical Physics, Inorganic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Inorganic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Inorganic Chemistry, Chemical Physics, Inorganic Chemistry, Photographics, Inorganic Chemistry, Photographics, Inorganic Chemistry, Physics, Inorganic Chemistry, Physics, Inorganic Chemistry, Chemical Physics, Inorganic Chemistry, Physics, Inorganic Chemistry,

fessions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

Normal education: Ministers..... Lawyers...... 0.55 

AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

LOCATION. It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway with its connection lines agricultural state.

way, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and pursery and well-equipped shops, for giving boys COURSE OF STUDY. butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reckoned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

**Dress-Making and Millinery.**—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

The Farm Department of the Agricult-ural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the highest breeding. Address E, M. Shelton, Manhattan,

ty Bonds.—District Boards, Township officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan.

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No. 5.

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### FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle. Words and figures are merely instruments with

### FARMER'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Practical Agriculture (advanced. 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology. 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Practical Geometry. 4. Horticul., Landscape Gardening 5. Organic, Analytical Chemistry. 6. Practical Surveying.	1. Physiology. 2. Rhetoric. 3. Algebra. 4. Practical Agricul. (elementary). 5. Physics. 6. Industrial Drawing.	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arithmetic, Book-keeping. 6. U.S. History, Industrial Drawing.

### WOMAN'S EDUCATION.

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### WOMAN'S COURSE.

	AA CATIFICATION	000200	
FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Farm Economy, Special Hygiene. 2. Geology, Mineralogy. 3. Polit'l Economy, Practical Law. 4. Zoology. 5. Phys'c'l Geography, Meteorology. 6. Logic.	<ol> <li>Botany, Entomology.</li> <li>Inorganic Chemistry.</li> <li>Industrial Drawing.</li> <li>Horticul., Landscape Gardening.</li> <li>Organic, Household Chemistry.</li> <li>Household Economy.</li> </ol>	<ol> <li>Physiology.</li> <li>Rhetoric.</li> <li>Algebra.</li> <li>English Literature.</li> <li>Physics.</li> <li>Industrial Drawing.</li> </ol>	<ol> <li>Drill in English.</li> <li>Drill in Arithmetic.</li> <li>Industrial Drawing.</li> <li>Inglish Structure.</li> <li>Adv'd Arith., Book-keeping.</li> <li>U.S. History, Industrial Drawing.</li> </ol>

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#### Saddlebag Notes.

A trip through northeastern Kansas will convince any one that this, as well as every other part of Kansas, can justly claim to be the "garden spot of the world." Good farms are not scarce, for there seems to be a commendable rivalry among the farmers here to see who will have the most that has averaged for a number of years past convenient farm buildings, the best system  $2\frac{1}{2}$  tons per acre; 60 acres of pasture (blueof farm operations, the most improved and approved breeds of stock, the best trimmed hedges, and the neatest farm surroundings

generally.

It's all stuff and nonsense about farming being "the most noble, the most independent, and the most lucrative employment for man," and the man who says so 1-ays it on too thick. Yet a man who cultivates a farm simply because he can make money by it, or because he knows no other business, is a disgrace to the profession. I claim that a man should be an enthusiast in any business he undertakes. Such a man is Dr. W. L. Challiss, the lately-appointed regent for the State Agricultural College. I judge this from conversation with his neighbors, and from a careful, critical examination of his home farm at Atchison. This farm consists of 750 acres, and is located two miles and Merinos, in addition to the Southdown. He thinks the Cotswold are somewhat tender, and is discarding them. During the winter these 1,800 sheep were fed two tons of clover hay and twenty-five bushels of corn each day. The sheep-sheds are three in number. The general width is eighteen feet, and the extreme length of all line. The sheep are under the charge of a skilled shepherd, August Ahrens, Esq., who, in the absence of the proprietor, kindly fect hedge, besides the showed me the many labor-saving implements on this farm.

First, we went to the *large* barn (for there are five of them). This barn is 50x60 feet, three stories high, and 38 feet to the peak. It is the most complete, the most convenient, and altogether the best barn that I have ever seen. Then there was the pighave ever seen. Then there was the piggery, with forty large pens all under one cover, with all the latest contrivances for steaming and cooking food. The slaughterhouse is about eighteen feet wide and forty feet long, fitted up with heater and scalding apparatus, and a very ingenious arrange-ment on the joist for hanging up the animals. It is fixed with rollers so that a hundred hogs could be hung up at once. Then there were the cattle-sheds that were 25 feet wide, open on one side, and 25 feet high, the whole aggregating 190 feet in length. The hay barns and sheds are capable of holding many hundred tons of hay. In one part of the barn, among the many different kinds of machinery in use on the place, I noticed an endless-chain, horse-power machine for cutting hay and straw.

But it would be impossible, in a short article, to give even a synopsis of the contents of these most durable and substantial farm buildings. I did not see Dr. Challiss, as he was upon his other farm in Nemaha county. I understand, however, that the doctor's farm in Nemaha county, is the bling over the "unfavorable season." best of the two. If so, I would like to see it.

Five miles west of Atchison is the "Shannon Hill" stock farm, owned by the Hon. rather like to see farmers sitting round on of industry, and the whole land, rich with a G. W. Glick. The stock from this farm store boxes grumbling at Providence. This are well known over the State. Until I man wished he lived in a country where irmade this trip into northeastern Kansas, I, irgation was needed, "then crops would be in common with ninety-nine persons in every sure." He looked as though he had been did picture, fair, sweet and beautiful to look ery one hundred in the State, believed that practicing his theory.—Journal of Commerce. upon.—Atchison Champion.

the tame grasses could not be successfully raised here, yet the observations of this trip have convinced me that the farmers in this locality are making it a success in an eminent degree. On this farm of 600 acres, there is 360 acres of tame grass, as follows: 60 acres of meadow (timothy and clover) grass and clover); and 240 acres of bluegrass sown on prairie three years ago, and now looking exceedingly strong. Within a very few years the prairie grass in this latter pasture will be all killed out and the bluegrass will have complete control.

There are on this farm, eight pasture fields with running water in each. I counted six springs in one field. Of pure Berkshire hogs, there are on this place thirty breeding sows of the most improved strains, viz., "Capitalia," "Mary Lytton," and the "Sally" strain, all in the front rank as to purity. These hogs were purchased from the best known breeders, viz., Bryant, of

Kentucky, Albert Crane, etc. At the head of the herd of Short-horns is that well-defined Duke, "Gustavus" 17267. He was sired by the 15th Duke of Airdrie, and dam "Gusia," by Thorndale. west of the city. There are on this farm | He is red, and four years old, and is a most 1,800 head of extra nice sheep, a cross between South downs, Cotswolds and the common Missouri sheep, graded up high. He contemplates making a still better cross this year, the rams being full-blooded Leicesters

The is red, and four years old, and is a most noble-looking animal. Among the cows there are many superior animals, viz., Miss Watson, whose sire was the 3d Duke of Coxford; "Zora" (a pure Bates), sired by 15th Duke of Airdrie; she has three Duke top-crosses. Then there is Rose 7th, who was descended from Belina, an imported cow that gave ten gallons of milk per day; and Bell Shannon, a large roan cow, same breeding as above. This last cow was to my mind the best of the herd, although in the opinion of the owner she was secondeighteen feet, and the extreme length of all is 575 feet. They are very far superior to anything I have ever before seen in this besides the calves, which will number by

> On this farm there is eight miles of perfect hedge, besides three miles more of young hedge, lately set out. - W. W. Cone,

in Kansas Farmer.

THE following illustrates the necessity of punctuation: "Woman — without her, man commas.—Osage County Chronicle.

MR. B. D. PALMER gives it as a bit of his experience and as a gentle hint to hog raisers, that many hogs die in their pens and pastures from the effects of "black teeth" or teeth which have become decayed, causing ulcers (generally) in the lower jaw. Before death the animals get blind, and fail to properly feed themselves. All such teeth should be taken out as soon as they become black.—Lawrence Journal.

Hon. D. B. Long, State Fish Commissioner, will soon stock the Black Walnut with shad and salmon. He will come down to Eldorado with millions of little fish and will dump them into the river at this place, and it is to be hoped that they will grow and multiply and that at no distant day the great Black Walnut Valley will be supplied | den. with this improved kind of brain invigorator.—Eldorado Times.

WE saw a man yesterday who was grumfelt almost like embracing him as a landmark of the good old times. As a rule we

Of the farms in Pennsylvania 71 per cent are cultivated by their own owners, 20 per cent are farmed on shares, and 9 per cent are rented. We should judge, without having any accurate statistics, that at least 90 per cent of the farms of Kansas are cultivated by their owners. Land is so cheap in this State that it is very difficult to rent farms, and if the renter has any energy or thrift, he soon becomes an owner.-Champion.

THE Farmer's Fuel Press is the newest invention brought to our notice, of which W. B. Mead of this city is the agent. A few moments' examination of this machine convinced us that it is a grand good thing for treeless countries. It rapidly and conveniently compresses slough grass, corn stalks, sun flowers, husks, etc., into good, convenient shape for stove fuel. It makes fuel easier and faster than can be made out of wood after it has been cut and hauled, even if wood was obtainable. It cuts feed also and makes a very good sorghum mill, the sorghum stalks being converted into fuel as they leave the machine. Two men the other day in front of Russell's made sixty billets, or rolls, in fourteen minutes. One of these will get a breakfast or tea. The machine costs \$25 and freight. Two men can put up one cord and a half in one hour. The machines are of iron, and look as though they would last a life-time. Many farmers have been carrying home the fuel to try it, and so far the price is universal.— Wichita Eagle.

Kansas Harvests.

A number of journals of Chicago and St. Louis are publishing crop reports, and including many from Kansas. This sort of information in ordinary years is valuable and interesting. But so far as Kansas is concerned, it appears to be, this year, monotonous and unnecessary. No matter where the reports are dated,—whether from the northwest, the southwest, the eastern border, the southern border, the northern tier, the central portion of the State, the valleys of the Kaw, the Blue, the Arkansas, the Republican, the Solomon, the Neosho, the Cottonwood, the Marias du Cygne, the Walnut, the Verdigris, the Deleware, the Smoky Hill or the Sappa - their tenor is all to the same effect, and may be summed up in a general statement running about in this

Winter wheat and rve never looked better. It is headed, or is heading out. The stand is thick, the growth unusually luxuriant, and the promise of an extraordinary harvest was never so encouraging. Corn mostly planted, and much of it up growing thriftily. No insect pest of any kind. The season is at least a month in advance of ordinary seasons. Farmers are a month to six weeks ahead with their planting, and working with more energy and confidence than they have before exhibited. Acreage in cultivation, from thirty to fifty per cent more than last year. Fruit promises an extraordinary yield. Stock in good condition. Immigration pouring in. Farmers are jubilant, business is generally excellent, and the whole State is blooming like a gar-

This general statement would cover the whole field and accurately describe the condition and prospects in every township of Kansas. Everything combines to encourage our people. There is not a flaw in the glad picture of peaceful plenty and general prosperity. Fields are vocal with the hum wonderful wealth of harvests and fruits,

SATURDAY, MAY 18, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

#### Chief-Justice A. H. Horton on the Jury System.

The subject of Judge Horton's lecture to the students of the Agricultural College is bound to become one of the "living issues" of legislation. In the vast majority of trials the final decision is made by the jury, so that any defects in the rules governing the selection and action of these twelve men must broadly and vitally affect the administration of justice. That such defects exist all admit, and that they should be remedied all agree.

No men have a keener realization of these defects than practicing attorneys, and Judge Horton's experience as an advocate amply qualifies him to speak with authority from this standpoint; while his comprehensive knowledge of the principles of law, of the the equitable adjustment of conflicting rulings, and his experience on the supreme bench, give peculiar weight to his opinion respecting the best modes of applying reme-

The full lecture was admirable, and even the following mere abstract will be of especial interest to our legislators and to all thoughtful citizens:

He referred to various devices adopted prior to the establishment of the jury system to decide the guilt or innocence of persons accused of crimes and to determine the rights to property; that these were unsatisfactory. He described how several of them. viz., the ordeal of water, the ordeal of iron the ordeal of the cursed morsel, and the ordeal of battle were conducted. He traced the jury system from its first distinguishable data to its present condition, and explained at length why a petit jury in a court of record is always composed of twelve persons, rather than a greater or a lesser number. Many incidents were given in trials before juries and judges, some of which were exceedingly laughable, and all of which were highly interesting.

The jury system was mentioned as the foe of oppression and the friend of freedom; as the enemy of tyranny and the protecting guardian of liberty; as the strong opponent of arbitrary arrest and despotic power; and the safeguard of personal rights, a free press, and free speech. He stated that trial by jury familiarized the people with the law and made it plain to those whom it most concerned; that, as Socrates first drew philosophy from the clouds and made it walk upon the earth, so trials by jury drew the law from the clouds of technicality and abstractions in which it was prone to hide, and made it also walk the earth.

After calling attention to the importance of trial by jury in many cases, and the benefits attending the system, he referred to its errors, abuses and wrongs, and to the great distrust and dissatisfaction which existed at the present time in this country towards its use in civil cases, and suggested that the spirit of progress which is abroad in the world, and which is heaving and agitating the public mind in respect to the arts, sciences, politics, religion and education, should not halt at the vestibule of our temples of justice, but should fearlessly penetrate their precincts and accommodate the jury system to our rapidly advancing civilization.

our national and State constitutions, cannot jury. The adoption of this procedure easily and ought not to be abolished, he would save expenses, lessen mistrials, and to purify and improve it.

thought, when the opportune time arrived, in the end result in substantial justice. that certain changes or modifications in the system might be worthy of consideration and perhaps of adoption. These changes or modifications were four in number:

First, That there should be no exemptions from jury service except for sickness, physical disability, official or personal engagements demanding the attention of the elector called as a juror. To preserve the jury system from all taint, prejudice and partiality, the best and the purest of voters should be selected. As the jury service is more important than any other public duty, none who wish well of the institutions of our country should shrink from its service. or the performance of its labors. The scholar, the merchant, the artisan and the laborer, should each fill the jury-box; every interest, every class, and every business, if honorable and respectable, should furnish its quota to fill the panel. Now intelligence, education and experience in business affairs - avoid, through the many modes of exemptions, all jury service, and the result is that our juries are too often made up of professional jurors or of persons belonging to the less educated and enlightened classes in the community. Sometimes in our cities, bummers and dead-beats lounging in the court-rooms, are called to fill the places of good business men, who get excused through an indulgent court, or by virtue of the favoring provisions of our statutes. When juries are thus composed, it is not strange that we hear of them deciding questions of life, liberty or property by the throwing of coppers or the pulling of straws. The law should favor the retention of the intelligent and influential men of a community on a jury, instead of providing accommodating methods for their retirement and discharge.

Second, He favored such a modification of the provisions of the statutes, under proper restrictions, that jurors who had formed opinions on the issues or material facts to be tried merely from reading accounts or statements of the transaction in the public journals, should not thereby be rendered incompetent to serve in the case. If juries are composed only of those who are unaccustomed to read the daily or weekly newspapers, as is sometimes the case, then the chances are that they will contain many who are too ignorant to read at all. Ignorance is dangerous on all occasions, and especially in a jury-box. That man who is disinterested in a case is not the more unworthy and unfitted to serve as a juror because he has read the papers of his town, city or county, and thereby become ac quainted through them with some of the facts of the case to be tried. He is less liable to be swerved or prejudiced by his reading the published facts than the juror too ignorant to read, who is more likely to listen to an appeal to passion from some eloquent member of the bar than to be guided by reason or the directions of a

Third, He thought that in all civil cases, after the jury had had under consideration the matter submitted to them a reasonable time,—say from six to twelve hours,—and were unable to agree upon a unanimous verdict, they should be permitted to report to the court, and thereon they should be again sent back to the jury room, and whenever, on their second retirement, two-thirds of the members should be of one mind as to the verdict, such agreement and result As the jury system, imbedded as it is in should be accepted as the verdict of the

One or two of the States of the Union have already adopted a similar rule, and in several of the States such a course of obtaining verdicts has been strongly advised, time and again, by judiciary committees of legislative bodies, but from some cause or other the change from the old or present system has been aggravatingly slow. The requirement of unanimity in the verdict of a jury in a civil case, as we used to say of slavery and as we still say of polygamy, is a relic of barbarism not in consonance with the ideas of the present day, nor the enlightened judgment of jurists. It cannot be well defended by any sense of justice or wisdom; and the principle that at last, after long days of weariness over evidence and argument, the jury, having considered for hours the matters submitted to their decision, shall be discharged without any results from their labors simply because one or two jurors fail our better class of citizens — our men of or refuse to agree with their associates, is unjust to the cause of truth and repugnant to all experience of human conduct and understanding.

Fourth, He believed that in all cases other than in criminal actions and where an affidavit of poverty was filed, all the fees of the jurors should be paid by the parties litigant in the case. For the protection of the jurors these should be paid in advance, or some means provided for the payment of such costs by the parties at the end of the trial. In his opinion there was no good reason why A, B and C, who never had a lawsuit, should be compelled to pay the cost of jurors for D and E, who were always at loggerheads and forever quarreling in the courts over trivial matters, when they were amply able to pay the costs themselves.

Now the fees of the clerks and sheriffs and witnesses in all civil cases are paid by the parties litigant, and why should not jurors be thus paid? If a case is referred and a referee tries the cause, the parties involved in the case pay the fees of the referee and all the costs of the reference; there was no good reason why jurors' fees should not be satisfied in the same way. The costs of jurors in civil cases in each county in the State during each year ranged from \$1,000 to \$6,000 and over, and in the aggregate must swell to a very large sum, exceeding \$100,000 a year in Kansas. These fees our over-burdened tax-payers are compelled to pay that a few may settle their law disputes in the courts before juries at public expense. Such a tax might well be denominated a tax upon the frugal and industrious to gratify the pleasures and passions of the litigious. The trite old maxim, that they who danced should pay the fiddler," might well be applied to the fees of jurors in civil cases. The adoption of this reform or change would have a tendency to dispense with the calling of jurors in trivial cases, thus lessening the number of jury trials, shortening the sessions of the trial courts, and greatly saving expenses to the public.

In conclusion, the lecturer stated his object had been to give an historical resume of jury trials, to show something of their importance in the past, to point out some of the defects and abuses now existing in the system, and to suggest some changes for consideration which if properly carried out might improve and reform it. He said that in our madness at its atrocities, its burlesges, and oftentimes its travesties on justice, we should not in blind fury forget its usefulness, nor heedlessly demand its destruction. We should first attempt to correct its errors and abolish its wrongs. Instead of swelling the cry to crucify the system of jury trials, the better work would be

#### The Clawson Wheat.

The following item has been extensively copied by the Kansas press during the last few weeks:

At a late meeting of the Scientific Association of Ann Arbor, Mich., Miss Lou M. Reed, instructor in the microscopic laboratory, read a paper on the "Microscopic Structure of the Different Kinds of Wheat." The varieties of wheat examined were Clawson, Diehl, Egyptian, Gold Medal, Russian, Schaffer, Tappahanock, Treadwell and Schaffer, Tappahanock, Treadwell and Wicks. In these she found that the Diehl wheat had the largest and thickest layer of nitrogenous or nutritious matter; that it contained more really nutritious matter than any other kind of wheat, although close to it and nearly identical with it was the Treadwell wheat. The others, however, were so far removed as to present a striking contrast. The popular Clawson wheat was found to contain the least nutritious matter of

The italics in the above clipping are our own, and will serve to call the reader's attention to the nub upon which hangs the whole paragraph; and which will very correctly lead him to infer that a colored individual of decidedly Herculean proportions lurks in the rear of this otherwise harmless and inoffensive-appearing item.

To an outside inquirer two questions will naturally suggest themselves: First, Of how much value is a microscopic examination of a section of wheat grain, in determining its nutritive ranks? Second, For what reason does this erudite instructor travel so far out of her way to brand the well-known Clawson wheat as the poorest in the list? A brief sketch of a very emphatic controversy in progress for some two years past will serve to clear up both inquiries. At a late annual meeting of the Michigan State Millers' Association, a resolution was offered by a certain clique in the Association, for purposes best known to itself, condemning the Clawson wheat as an inferior grain and a second-rate flour producer. This variety of wheat had been heretofore highly prized by many of the most intelligent wheat growers of the State, and in fact since its introduction had steadily grown in popular favor and in market value. The presentation of a resolution of this character was therefore not only wholly inexplicable but flatly in opposition to the best wheat authorities of Michigan; however, the faction introducing this measure were powerful enough at that time to force its passage. Such unusual and uncalled-for action naturally led to sharp discussion through the agricultural press of the State as to its origin and purpose. With a view to thoroughly developing the whole truth of the matter an investigation was undertaken for the State Board of Agriculture by Prof. R. C. Kedzie, the Director of the Chemical Laboratory of the State Agricultural College. A series of over sixty laborious analyses of the grain and flour of every variety of Michigan-grown wheat was completed. From these are selected the best results obtained for the three leading varieties - Diehl, Treadwell and Clawson:

VARIETY.	Albuminoids. glutinous matters.	Carbohydrates. starchy matter.	Water.
Clawson	12.69	75.18	10.43
Tread well.		73.10	12.69
Diehl	12.38	76.26	9.64

From the above analyses it will be seen that not only does the Clawson stand fully abreast with the Diehl and Treadwell, but if with Miss Reed we accept the percentage of nitrogenous or "nutritious matter" as the standard of value, it heads the whole list of grains. More than all this, samples of the flour of the leading varieties were placed in the hands of different individuals to be used in bread-making, and the Clawson in each case was reported as standing among the most superior for its light, flaky

and nutritious loaf. Of course, the results of this exhaustive investigation, conclusive as they are to the unprejudiced observer, and which have been pronounced by the Michigan Farmer as reimbursing the State for every dollar expended upon its Agricultural College, could not be allowed to pass unchallenged by the aforesaid clique of the State Millers' Association. At its next meeting still another and more vituperative attack was attempted upon the reputation of the Clawson wheat, which lamentably failed, being squarely sat down upon by a now thoroughly enlightened majority. It would now seem as if the chemical authorities of the State University had been consulted to furnish if possible rebutting testimony in this discussion. But can it be that the flimsy assertions of the item quoted at the head of this article embody the results of the University's researches in this matter? The national reputation of its laboratory and of its talented dierctor, Dr. Prescott, would certainly lead us to expect something more worthy of our attention, or at least a little less trying to the patience than this girl's-play method of investigating a matter of paramount importance to the State. The reader's knowledge of the subject need not be very extended to enable him to perceive that Miss Lou M. Reed's assertions are valueless. No microscopist who thoroughly understands the capacities of his instrument will venture to offer the approximate measurements which it can furnish as refuting the delicate and absolute results of quantitative chemical analysis, which are stated with mathematical precision.

As determining the food value of a given variety of wheat, such microscopic examinations are futile: First, because its method of determining the amount of nutritive matter in the grain by measuring the nitrogenous layer furnishes at best but a rough approximation. The nitrogenous matter of the grain is not wholly confined to this layer, but is to some extent distributed through the mass of the grain itseif. Second, because the measurement of the nitrogenous matter of the grain is no criterion of its nutritive value. The day has passed for asserting such a standard of comparison.

Man does not live by bread alone, nor does he depend upon it for the supply of the nitrogenous elements of his food. The gluten of which the nitrogenous matter of the grain principally consists is valuable pre-eminently for its mechanical office in holding the carbonic acid bubbles generated in the yeast fermentation of the "sponge," thus making possible the light, porous and flaky bread loaf, easily and rapidly digestible. Any wheat flour which furnishes ten per cent of this glutinous matter may rank well as a bread producer. As we have already seen, the Clawson furnishes even more of this glutinous matter than either the famous Treadwell or Diehl; contains more starchy matter than the former and scarcely less than the latter; and, in fact, may be confidently commended to the attention of Kansas grain growers as a variety unexcelled. In view of these facts, we can hardly be censured for expressing the conviction that the interests of science will suffer little detriment if the amateur microscopists of our land will rest satisfied with the results of their severer labors in looking after the adulterations of tea leaves and ground spices .- Prof. Kedzie.

The school officers in Huntington, Iowa, pay the teachers of the primary schools the largest salaries, and reduce the pay as the teachers advance to higher grades. The result is the primary schools are excellent.

# THE INDUSTRIALIST.

SATURDAY, MAY 18, 1878.

The Ulrich boys are doing the cut stone-work, and are doing it finely.

Senator Guthrie, of Atchison, and Prof. G. H. Lowery, of Topeka, gave us visits this week.

The Winfield Courier is issuing a wide-awake daily, which speaks well for itself and town.

Students desiring the Industrialist during vacation can have the same until September first by leaving their addresses and twenty-five cents with A. A. Stewart.

The Davis County Bureau of Immigration has issued a valuable pamphlet, setting forth the attractions of that section, which new-comers would do well to read.

The Western Homestead is a handsome monthly of thirty-two pages just started by Burke & Co., of Leavenworth. With Mr. Burke, of the Times, as senior editor, it cannot be anything else than good. Price, \$2 a year.

Owing to the wild recklessness with which the clouds have been dumping out water during the last ten days, the numerous prophets who insisted upon having a "drouth" this season will probably postpone the same indefinitely, "on account of the weather!"

The wet weather has of course stopped all work on the new building. Mr. Winne had the walls ready for the joists last week; and the lumber is at the depot. As soon as the weather clears up Mr. Bennett will place the joists, after which the stone-work will start again.

Webster Society called to order Saturday evening, May 1fth, 1878, by the President. Mr. Greely led in prayer. All the debaters except two being absent, that order was passed over. Extemporaneous speaking lively. The Reporter was presented by A. Beacham. The Society was favored with a few remarks from Mr. Greely, which were highly appreciated. Mr. Godfrey will deliver a farewell address to the Society next Saturday night. Come and hear him.

Major Downs, Superintendent of the Central Branch, has invited the Kansas editors to excurt from Atchison to Concordia and back. We hope arrangements will be made enabling those so desiring to take the run. Speaking simply for itself, and not in the least for any other paper, the Industrialist has a vague notion that some of these years a pleasant and profitable editorial excursion might be made by going over every road in the State, and making a general and hilarious inspection of Kansas and Kansas towns.

The Alpha Beta Society convened as usual, Friday, May 10th. A. T. Blain presided, the President and Vice-President both being absent. The question, "Resolved, That all we do is done through selfish motives," was then discussed and decided in favor of negative. An interesting selection was read by Miss Grace Parker, followed by an essay from Miss Jennie Coe. During extemporaneous speaking the Society was favored by a few remarks from John Griffing. At next meeting, the last one of the year, the Gleaner will be presented by Miss Cook and W. H. Sikes, and a debate will take place on the question, "Resolved, That the present jury system should be abolished and a new one sub tuted." Mr. Wyland and A. E. Wilson on the affirmative; and Emma Glossop and G. L. Platt on REPORTER. the negative.

### SENIOR SUPPER.

Wednesday evening the Senior Class, with several invited guests, met in the Kitchen Laboratory. The table was spread by the efficient hands of Mrs. Cripps, which is equal to saying that it was arranged in the highest style of the art. Flowers in profusion decorated the table, and furnished a beautiful bouquet for each member of the class.

Words fail when attempting to describe the eatables. Delicious tongue sandwiches, melting tarts, epicurean pies, cakes simply—but there are no adequate adjectives! To crown all came heaping plates of strawberries, the best samples of the best fruit that grows. The present Senior Class is noted for its appreciation of good things, and its reputation was by no means weakened on this occasion. Acting on the principle that actions speak louder words, ample justice was done to the

After lingering at the table as long as the rules of courtesy and hygiene would admit, fun and frolic were fully enjoyed. At a seasonable hour a general hand-shaking was indulged in, good nights were spoken, and all repaired home, saddened by the thought that our Senior parties are so nearly over. The class would tender their sincere thanks to Mrs. Cripps for her kindness, zeal and skill in the preparation and arrangement of everything; to Mrs. Anderson for those delicious strawberries; and to Mrs. McConnell for a fine cake.

#### COMMENCEMENT.

The exercises of Commencement will be conducted according to the following programme:

The sermon to the graduating class will be delivered by President Anderson, on Sunday evening, May 19th, in the Presbyterian church, at eight o'clock.

On Monday and Tuesday, May 20th and 21st, the term examinations will be held at the College in the several recitation rooms. One half of each examination will be oral and the other half by written answers to written questions. All persons are cordially invited to attend, and will find the following time-table convenient in making a selection of classes:

#### MONDAY.

8:40 to 10:20.—\*Commercial Law, Prof. Ward;
\*Household Chemistry, Prof. Kedzie; \*Practical
Agriculture, Prof. Shelton; †Practical Horticulture, Prof. Gale; †Drill in Arithmetic, Prof. Platt;
†Industrial Drawing, Prof. Walters; Carpentry,
Capt. Todd; Printing, A. A. Stewart; Telegraphy,
W. C. Stewart; Sewing, Mrs. Cripps; Instrumental
Music, Miss Steele.

10:20 to 12:00.—\*Logic, Pres. Anderson; \*Rhetoric, Prof. Ward; †Physics, Prof. Kedzie; †Bookkeeping, Prof. Platt; †Industrial Drawing, Prof. Walters; Carpentry, Printing, Telegraphy, Sewing, Music, as above.

2 to 3:40.—\*Surveying, Prof. Ward; †Book-keeping, Prof. Platt; †Drawing, Prof. Walters; Carpentry, Printing, Telegraphy, Sewing, Music.

#### TUESDAY.

8:40 to 10:20.—\*English Literature, Prof. Ward; \*Chemical Analysis, Prof. Kedzie; \*Zoology, Prof. Gale; †Drill in English, Prof. Platt; †Industrial Drawing, Prof. Walters; †Household Economy, Mrs. Cripps; Carpentry, Blacksmithing, Printing, Telegraphy, Sewing, Instrumental Music.

10:20 to 12.—\*Commercial Law, Prof. Ward; \*Agricultural Chemistry, Prof. Kedzie; †Book-keeping, Prof. Platt; †Industrial Drawing, Prof. Walters; Carpentry, Printing, Telegraphy, Sewing, Music.

\*Oral the first half, written the second half. †Written the first half, oral the second half.

The Board of Regents will meet at the Adams House on Tuesday evening at seven o'clock.

The Commencement exercises will be held in the Presbyterian church on Tuesday evening, beginning promptly at eight o'clock, and will be as follows:

#### INVOCATION.

#### MUSIC.

"The Practical Man,"
Amos E. Wilson, Dickinson county
MUSIC.

"The Importance of the Mechanic Arts,"
CHARLES S. McConnell, Riley county.
MUSIC.

"The Self-Thinking Laborer," GEORGE L. PLATT, Riley county

"The Kansas Farmer,"
ALBERT N. GODFREY, Greenwood county.
CONFERRING DEGREES.

### MUSIC

Annual Oration before the College, by Col. J. R. Hallowell, of Cherokee county.

MUSIC.

### BENEDICTION.

### ENTERPRISE ITEMS.

W. C. Stewart took a trip up to Clay Center last week.

Last Saturday was a lively day, and plenty of business was done.

Some of the finest cattle we ever saw have been driven into town within the last two weeks.

We are informed by Mr. Wilder that Manhattan's exports for the last month averaged about five car loads per day.

A grand farewell social will be held by the College students next Monday night. A pleasant time is anticipated, judging from the demand for livery "rigs."

The exchange thief who gobbled onto our Industrialist before we had read it, compelling us to go and borrow one, had better stay away from here awhile, or he will get run through a guillotine. The Industrialist is like other blessings, of which we know not the value until gone.

### NATIONALIST ITEMS.

The new stock yards are going up on the prairie south of town.

J. W. Smith, of Westmoreland, took in four hundred pounds of butter lately, in one day.

There was shipped from this place on the K. P., in the month of April, 3,500,000 pounds of freight, and about 1,000,000 received.

Wm. Hill, who lives near the College, brought us in some strawberries this week, of the Col. Cheny variety, that fairly make our mouth water to look at.

Sam Ferguson went down to Kansas City Monday to make arrangements for another excursion to the mountains this summer, of which due notice will be given.

Geo. Hungerford brought into our office, on the 13th inst., a potatoe vine containing a dozen potatoes, grown this season. Some of them were larger than walnuts.

We never saw Manhattan look so beautiful as it does now, and we are glad to see that improvement is still the order of the day. New trees have been set out, additional yards sodded, rare flowers and shrubs planted, etc.

The Manhattan school board have decided to dispose of the old desks, so as to furnish the new building with new furniture. The building known as the white school-house is also for sale. Parties purchasing it will have to move it soon. See notice in another column.

The Manhattan Industrialist is a handsome little paper, and is doing good work for the Agricultural College. It is one of the neatest printed papers in the State.—Wathena Advance.

THE INDUSTRIALST is the most industrious little sheet that comes to this shop. President Anderson knows a good many things, not the least important of which is that we are living in the fourth quarter of the nineteenth century, and not in the pre-Adamitic age.—Emporia Real Estate Register.

President Anderson, of the Kansas State Agricultural College, visited Wichita and Winfield week before last, and delivered his lecture on Kansas to delighted audiences in both cities. Upon his return he published in the INDUSTRIALIST a glowing description of the country between Wichita and Winfield. Now Sedgwick and Cowley are both pretty good counties,—better than the average,—but bless your dear, kind heart, Mr. President, had you included Sumner county in your ramble, your enthusiasm would have bubbled over, and you—well you would have seen the "Great Southwest!" Wheat! Oceans of wheat. "Twas the month of April. Did you find new potatoes, strawberries and cream in Sedgwick or Cowley? Didn't? Well, when you visit Wichita drive down into Sumner and see something worth writing about.—Wellington Press.

#### PRESS CLIPPINGS.

Juicy reading ahead. Two hundred thousand copies of the United States Agricultural Report are to be printed.—Commonwealth.

The Topeka Commonwealth has been enlarged. This was done to make space for advertisements, and give Prentis room according to his strength.—
Clay County Dispatch.

We regret to see signs of "onpleasantness" between our old friends, Hon. Jacob Stotler, legislator, postmaster, etc., and Noble L. Prentis, lecturer and humorist. Brothers, let us go a fishing.

—Parsons Sun.

It is reported that three hundred thousand Texas cattle are "hoofing it" toward the northern markets, having started somewhat earlier than usual. There are also nearly a hundred thousand in southern Kansas, ready for movement in June.

—Leavenworth Press.

Yesterday three car loads of Leavenworth flour were shipped to Peoria and other points in Illinois, and there is not a day passes but what a quantity of Kansas flour is shipped to that State—for years the flour center of the United States. This is virtually shipping coals to Newcastle.—

We have received a specimen of a new variety of potato, being propagated by James Truitt, Esq., of this place, known as "The Ruby." Mr. Truitt planted the seed on the 20th of March, and yesterday brought in a potato, grown from this planting, which measures five inches in circumference one way and five and a half the other. A remarkably rapid growth, being only forty-eight days from planting. This is a promising potato, being well formed, white and crisp.—Chanute Times.

### TOPEKA CALENDAR ITEMS.

Leavenworth has an American-German school, with one hundred scholars.

Felter's School Records are the only ones in the market manufactured in Kansas.

A majority of the normal institutes in the State have decided to use Felter's Elements of Book-Keeping as a text-book.

An immigrant wagon at Hays City, labeled "Ad astra per aspera," convinces the *Sentinel* that the new-comer is high-toned and classical.

Henry Ward Beccher says that the public schools of Kansas, as evinced by their work, have no peer in any State in the Union, and that our system of education is equal to any of the New England States.

The first edition of "A Kansan Abroad" is about exhausted. In four weeks from the first sale, less than two hundred copies remain, and the largest towns in the State have not been supplied.

The State school fund is now nearly all invested, and the investment stands as follows: In Kansas State bonds, \$607,925.00; Lawrence city bonds, \$100,-000.00; United States bonds, \$140,000.00; school district bonds, \$579,936.61: total, \$1,427,861.61. The interest on most of this investment is due in June and July. That on school district bonds is nearly all on the first of June.

Supt. Lemmon has just returned from the dedication of a \$1,500 school-house, at Brown's Grove, Pawnee county, the center of the "Great American Desert." One year ago the buffaloes, wolves and antelopes were the only inhabitants; to-day the prairie is dotted with the comfortable homes of settlers, who have come to stay. There is yet room—bread for the hungry, clothes for the ragged, and knowledge for the ignorant.

Plenty of vacant land in the State for "professors" in the East who want to come out on "evangelical work." Special branches required to "take" and hold a "claim" are entomology (grasshoppers and chinch-bugs), botany (cockle-burs and Mexican thistles), industrial drawing (pulling a breaking-plow), military tactics (fighting Comanches), and kindred other topics. Salary, corn dodgers and bacon. None but graduates and those well recommended need apply.

### METEOROLOGICAL RECORD.

Condensed by Prof. Kedzie from the observations taken at the State Agricultural College, for the week ending May 16th, 1878. Latitude, 39°12'; Longitude, 96°40'; Height, 1,200 feet.

		Ten	mper	Bar.	10	
DAY OF WEEK AND MON	гн.	Max.	Min.	Mean.	Mean Hight.	Inches Rainfa
Friday	10	65°	430	56°.75	28.97	.12
Saturday	11	71	34	52 .25	28.78	.42
Sunday	12	50	39	46 .25	28.87	.45
Monday	13	54	39	48 .25	28.81	bishs
Tuesday	14	63	39	54 .25	28.78	A DING
Wednesday	15	52	45	51 .25	28.55	.38
	16	60	42	53	28.59	

Average temperature for the week, 51°.71. Range of temperature for the week, 37.° Rainfall for the week, 1.37.

SATURDAY, MAY 18, 1878.

A. H. McLAIN, of Harvey county, has a farm of 640 acres, on which he has six miles of hedge; 15,000 forest trees fifteen feet high; 25,000 peach trees, mostly bearing; and small fruits of all kinds, besides immense fields of wheat, corn and other cereals. Five years ago this land was raw prairie. -Champion.

TWENTY-TWO million bushels of wheat! The State of Kansas has 1,243,151 acres of wheat now growing, an increase of 386,023 acres more area than was sown last year. An average of 18 bushels to the acre which will be a low estimate under the present prospects of the crop in this portion of the State — would give us 22,376,718 bushels of wheat.—Wichita Eagle.

THE intercollegiate oratorical exhibition is a very good thing in its way, but the young American takes to oratory as naturally as a duck takes to water, and needs no special training in this direction. A much more profitable contest would be one for the art of condensed expression. The tendency of the times, as witnessed at the bar, on the stump and in the pulpit, is to garrulity as a substitute for thought. What should be encouraged is greater economy in the use of words; and to this end nothing would be better than a prize for the best condensation of some standard speech or address. Let some college offer a premium for the best abstract of Webster's reply to Hayne, for instance, and let the test of merit be the extent to which all the ideas of that famous address are couched in the briefest language. -Globe-Democrat.

#### A New Light.

It begins to look very much as though gas, for illuminating purposes, would soon be reckoned among the things of the past, and have to take its place among whale-oil lamps and penny dips. There has been much said of late about the new electric light which is now being used in some of the public places of Paris, and the following extract from an article in the New York Tribune shows that this new illuminating agent has been introduced, with important improvements, in New York. Says the Tribune:

"A practical application of the electrical light for general illuminating purposes has been made by J. B. Fuller in this city. The burners dispense with all clock-work and movable parts. A small piece of glass is bound on the side of two sticks of carbon and adjusted in an oblique position. The space between the sticks of carbon is free for the flow of the electric arc, which adds greatly to the volume of light. The machine itself is extremely simple in construc-tion. By means of a small engine, an armature, made of soft iron bound by fine copper wire, is caused to revolve between the poles of an electro-magnet. This generates a strong current of electricity, which is conducted to the burners by two wires. The real improvement over the system as used in Europe consists in the mechanism employed for maintaining a large number of lights in a single circuit. A contrivance has been arranged which anticipates the extinction of any burner in the circuit without affecting any of the orders. A magnet in circuit with the light holds an armature to its poles. Should the light weaken to any degree the current will weaken proportionately; but an opposing spring to one of the armatures will draw back the armature and thus close a branch circuit around the weakest burner in time to prevent the extinction of the others. The light produced is as much superior to an argand burner as the latter is better than a tallow dip, and the cost is estimated to be about one-fifteenth that of gas."-Leavenworth Times.

### Industrial Education.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or engage in any of the "industrial professions or pursuits," as distinguished from the "learned propursuits," as distinguished from the "learned pro-

fessions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

10110 # 5 .		
Normal education:	1.13-	1.13
Professional education:		
Ministers	0.43	
Lawyers	0.55	
Doctors	0.73-	1.71
Industrial education:		
In agriculture	59.13	
In manufacturing and mechanical	14.63	
In personal service	13.89	
In trade and transportation	9.51=	97.16

#### AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

LOCATION. It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a COURSE OF STUDY. instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving and music.

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reck-oned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Press-Making and Millinery.—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

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ducational Calendar. - A wide-awake, spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W. Martin, Topeka.

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course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English,

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Mathematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Thonography.—Instruction given in Pitman's Style of Phonography, recommended and in use by the leading reporters of the United States. A course of thirty-five lessons by mail. To any person having a thorough knowledge of short-hand, an honorable and lucrative living is at command. Reference given. For terms and particulars, apply to or address Charles H. Torrington, Manhattan, Kansas.

Club Rates.—The regular price of the Kansas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the Industrialist for \$2.75; or the Farmer and INDUSTRIALIST for \$2.25: or the or the Farmer and INDUSTRIALIST for \$2.75; or the American Young Folks and the INDUSTRIALIST for \$1.00.

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The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixtyfour pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case, Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country.

most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific subjects. subjects.

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Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the Review and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

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THIS College furnishes a thorough and direct education to those who intend to be Farmers, Mechanics, or to follow other industrial pursuits. As a foundation for each course of study, and for success in daily life, the first object is to make every student an expert in the use of the English Language as an art; and, also, an expert in Practical Mathematics, including skill in the use of numbers; in the use of lines, or Industrial Drawing; and in Book-keeping.

### FARMER'S COURSE.

Building on this foundation, the special object of the Farmer's Course is to give the student a practical knowledge of the structure, growth, and practical knowledge of the structure, growth, and value of Plants; of light, heat, and moisture; and of Inorganic, Organic, Analytical and Agricultural Chemistry, as these are related to Plant and Animal Growth; of Economic Zoology; and particularly of Practical Agriculture and Horticulture, including such instruction and drill in the Field, in the handling of Stock, in the Nursery, and in the Wood and Iron shops, as will enable the graduate to perform readily each of the varied operations of actual Farm Life. The Farmer's Course is the leading one of the Institution leading one of the Institution.

### MECHANIC'S COURSE.

To Mechanics, in addition to the studies of the Farmer's Course, applied Mathematics and Industrial Drawing are more extensively taught. Besides this literary education, the student is taught daily in the particular work-shop of his trade. Special advantages are thus offered to those who wish an education as a Carpenter, Cabinet-maker, Wagon-maker, Blacksmith, Turner, Carver, or Engraver. No charge made for the use of tools or materials for class practice.

### WOMAN'S COURSE.

The course of study for woman is more practical and, therefore, more sensible than that found in any other institution in the United States. The studies are shaped with reference to the liberal and direct education of woman as a woman instead of an emphasis of an emphasis of the studies are shaped with reference to the liberal and direct education of woman as a woman instead. of as a man, and as an industrialist instead of a of as a man, and as an industrialist instead of a butterfly. Among the special features of the course are Physiology and Special Hygiene, Household Economy, Farm Economy, Gardening, Household Chemistry, etc. The work-shops include those of Millinery and Dress-making, Printing, Telegraphy, Scroll-sawing, Carving, Engraving and Instrumental Music.

TUITION ABSOLUTELY FREE! TO

No contingent fees, except for use of planos and organs in the Musical Department; and a charge of \$1.00 per month for material and instruments used by male students in Printing and Telegraph Departments. Boarding ranges from \$2.75 to \$4.00

CALENDAR: — Fall Term began August 23d, and closed December 20th, 1877. The Spring Term began January 3d, and will close May 22d, 1878.

For further information, apply to JNO. A. ANDERSON, President.

VOL. IV.

MANHATTAN, KANSAS, SATURDAY, MAY 25, 1878.

No. 6.

Published every Saturday by the PRINTING DEPARTMENT

### KANSAS STATE AGRICULTURAL COLLEGE

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### INDUSTRIAL EDUCATION.

The real value of an education to the studen depends upon two things: First, the practica worth of the knowledge taught; and, second the degree in which he makes it his own. Hence the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

### FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an educa-tion; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in ematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

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### WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

### WOMAN'S COURSE.

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# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

# Our College—Its Past, Present and Future.

[An Oration delivered by Col. J. R. Hallowell at the Commencement exercises of the Kansas State Agricultural College, Tuesday evening, May 21st, 1878.]

It is somewhat surprising to the observing student of educational history that a country possessing such a vast area of agricultural and mineral lands, and embodying such enormous mechanical and scientific wealth as the United States, should make such meager provision for the development and advancement of these interests. While we number many of the very best universities, adapted to the cultivation of the mind alone, under curriculums borrowed from the mother country, whose title to them is their propagation in her soil of necessity, nurtured and matured in the interest of her aristocracy, we have made but feeble preparation for, and but little advancement toward, our large agricultural, mining, mechanical and scientific interests. While we had in many respects imitated the various institutions of the Old World, it was not until the year 1859 that our National Legislature, under the leadership of Hon. Justin S. Morrill, then a member of the lower house of Congress, passed the law entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and mechanic art," which gave to each State and territory land scrip to the amount of 30,000 acres for each senator and representative in Congress for the endowment and perpetual maintenance of "not less than one college" for the benefit of "agriculture and the mechanic arts." This act was very popular in the northern States; but, like all great steps of advancement in our educational interests, it received the bitter opposition of the slave power, which then held such impregnable position in our National Government. Many of the most prominent men of that day openly fought it or secretly opposed it. Among them was that old imbecile traitor; the now almost forgotten, unhonored and unmourned president, James Buchanan; who, doing the bidding of his masters, and acting in the interest of the slaveholder, penned the veto that for a time seemed to have defeated the plan. This, with other acts in aid of slavery, aroused the free-laboring masses of the North to the importance of the project, and in 1862 we find Mr. Morrill a senator from Vermont, and again leading the statesmen of freedom in the direction of this neglected interest. The movement now had gathered to its support the purest patriots and wisest statesmen of the nation. Men who were the open and avowed enemies of slavery in any form, men whom principle led and duty prompted, men of deep penetration and far-reaching sagacity, foresaw the great benefits to the masses, and consequently to the Government, that would result from the measure; and among these, the noblest Roman of them all, was the immortal and lamented Lincoln. After

large majority, he promptly approved it, and it became a law July 2d, 1862. What a change is this! Vetoed at the command of American slavery in 1859, approved at the wish of American liberty in 1862, and approved, too, with the same pen that wrote the Proclamation of Emancipation—the death warrant of American slavery.

No man could confer a more substantial or beneficial gift upon the masses of the nation than Mr. Morrill has bestowed in this law. The men who were instrumental in bringing it about "builded better than they knew." The law required that each State and territory claiming the benefit of the act should within five years from its passage provide not less than one college, which should receive for its endowment all money derived from the sale of the land appropriated, and for its maintenance the interest of that money. Within a very short time after the approval of that law, energetic and sagacious men in every part of the Union who felt or had a true interest in industry brought the matter prominently before the several State Legislatures, urging the great advantages that the acceptance of the endowment would secure to the laboring classes. Others conscientiously and strenuously opposed it, claiming in their arguments that it would only add additional burdens of taxation to the already enormous expenses necessary to the vigorous prosecution of the war, while still others opposed its acceptance, declaring that the whole plan was visionary and would lead to nothing but a useless expenditure of money, and promised no substantial benefit.

The discussion of the proposition has thrown much light upon the whole subject. By the press, in the shop, in the field and at the fireside it has been considered, and the results have been extensively beneficial. It has forced the subject upon the attention of the agriculturist, the mechanic and the scientist and aroused them to a realization of their rights, privileges and duties. Its duration and earnestness have developed latent talent and awakened among the laboring millions a desire for information that will burn on through the years, guiding the child of industry to the Mecca of success. It has in an almost incredible short period of time made it possible to maintain numerous agricultural papers and mechanical journals, and has been the real parent of innumerable useful inventions and advanced the laboring masses to a higher plane of intellectual citizenship.

State after State by their legislatures accepted the terms of the grant and made provisions to carry it out, until to-day there are over thirty institutions in the United States, with full corps of professors, instructing young ladies and gentlemen in the various studies found in the curriculums of industrial colleges. Some States have with the endowment added the industrial course to their respective State universities. Others have established and are maintaining colleges in compliance with the act wholly this bill passed Congress, as it did by a

independent of their universities, yet have kept up and are now maintaining the traditional curriculums in connection with the industrial training. Some of them have been successful; others, it is claimed, have undertaken too much, and are not meeting the expectations of their projectors.

It has been left to a younger State, the first lines and pages of whose history are lettered in blood, whose progress has been through the most serious troubles, and whose name connects itself in thought at the mention with all there is of freedom, for no other State has a history so interwoven with that of the death of African slavery upon American soil as Kansas. I say it has been left for our State, citizens of Kansas, to inaugurate, operate and successfully maintain a college that is, in my opinion, nearest the true intent and meaning of the law of Congress. Kansas, though young in years, was one of if not the first of the galaxy of States to accept by solemn enactment the proffered endowment for the benefit of her major interests. It will be remembered that the act of Congress was approved on the second day of July, 1862. In 1863 our Legislature passed the joint resolution accepting the grant in words as follows:

"Be it resolved by the Legislature of the State of Kansas: That the provisions of the act of Congress entitled 'An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts,' approved July 2d, 1862, are hereby accepted by the State of Kansas; and the State hereby agrees and obligates itself to comply with all the provisions of said act.

"Resolved, That upon the approval of this act by the Governor he is hereby instructed to transmit a certified copy of the same to the Secretary of State and the Secretary of the Interior of the United States."

This resolution was approved by the Governor February 3d of that year, just seven months and one day after the approval of the act of Congress by President Lincoln.

Having accepted the grant, the same legislature, in compliance with its covenant, passed an act for the location of the College, by the terms of which your beautiful city of Manhattan and Riley county became the favored place; and that law provided for the purchase aud transfer to the State of Bluemont College, near the present site. This act was approved February 16th, 1863. Thus your city became the seat of what is destined to be the most popular and powerful institution of learning in the State, not by reason of the higher order of studies taught, or the brilliancy of accomplishments, or the statesmen, clergy, lawyers or doctors produced, but from the aggregate wealth you add to the farms, the mines, the work-shops and the homes of our State.

Thus it will be observed that the legislators of the infant State were men of sagacity, and without parleying over the feasibility of the plan, made prompt provision for the

interests of Kansas. I have said "infant State." The act of admission into the Union was approved January 29th, 1861, and the joint resolution by our legislature, accepting the terms imposed by Congress upon the admission of the State, was approved January 20th, 1862, only a little over a year before this endowment was accepted. The promptness with which our legislators acted in the acceptance of the grant was only commensurate with the precocity of the young State. Prentis, in his "World a School," describes Kansas as " a State which had elections before it had legal voters, railroads before it had freight and passengers for them, and newspapers before it had printing-offices," and he might consistently have added, and an Agricultural College before it had an agriculture. The ninety thousand acres of land thus donated and accepted were selected with the same wisdom and promptness that characterized the action of the legislature in accepting the grant and locating and establishing the College. They are of the very best farming lands in the State, and are today commanding the highest market price.

The management and progress of the institution make its history, and that history like the College itself is the property of the State. Upon that history we do not offer criticism; we have none to offer. He who is most interested, the industrialist, who looks forward to an education for his child that can be balanced with dollars and cents, should alone hold this royal prerogative. Charity veils the past, and from her throne of mercy points with the strengthening finger of faith to the bright, hopeful future, and enjoining christian allowance says: "Whosoever has been connected with the management of this institution and contributed to its growth, its advancement and its success, has been actuated by the purest motives, and has honestly given his best energies for its most sacred interests. One thing is apparent to all: the College has materially advanced in value as an educational institution, and year after year as its advantages to industrial life have been developed and made known, its value felt and its intent made plain, it has become more and more the especial pride of the masses of our growing State.

Prior to the establishment of industrial schools in the United States, the higher order of education was so far removed from the working people that but few of them trial classes, for all future time must, and of obtained it. In fact, the system created a necessity ought to be, as compared with tions to erect buildings and to maintain and kind of educational aristocracy. The prime others, the Nation. Upon what portion of object of the originators and supporters of the agricultural college bill was, that practical education might be placed within reach of the sons and daughters of toil, and they be instructed in the science of agriculture and the various trades, and not be forced into the professions; "not," in the language of one of our statesmen of tender growth, "instructed to curse a mule in French, German, Latin or Greek; not to plow the soil or do the dairy work with hands encased in the choices kids," but that the science of agriculture and the mysteries of mechanism might be explained and impressed upon the young minds by practical demonstrations. In short, it was teaching them economy, doing away with the old theories and acknowledging the fact that the mere theorist goes penniless in rags, while the practical man accumulates his millions.

The land commissioner has sold 53,640 acres of the land belonging to us, bringing to the endowment fund \$249,000. This has been carefully invested in the very best date of the location of the College, and at

future agricultural, mechanical and mining securities of the State, drawing the highest rate of interest and bringing an annual income to the College of about \$22,000. This income, whether increased or diminbe used to defray current expenses. The endowment can never be legally converted to this use; it is to be held inviolate for the benefit of industry. The remaining 27,961 acres of land are being sold as rapidly as the demand requires, and when entirely sold the endowment will reach the handsome sum of about \$425,000, which, allowing that interest may be reduced, the net income will still be amply sufficient to pay all the necessary expenses of an economical administration of the affairs of the institution.

In accepting the grant, the State of Kansas, by the terms of the parent act, solemnly guaranteed the complete carrying out of the intent and meaning of the law. With propriety we may at this point consider for a moment what the true intent and meaning of the legislators was. In the opinion of your orator, formed from a careful study of the debates upon the bill in 1859, and again in 1862, just before its passage, there was in their minds but one judgment but one thought-practical education in its truest sense and most forcible meaning, and not the training of the mind alone, as was so earnestly persisted in by our older universities, in the interest of the professions which have long been overcrowded; for, as has been truthfully said by a Kansas genius, "from the nature of the case, a professional education does not require any discipline of the physical organs." Long before Congress passed this law, scores of the most venerable yet vigorous institutions afforded to all who could reach them a liberal education. They taught many things connected with the industries; but the instruction was by precept, not example; theoretical, not practical; and the Government, true to culture, through Congress has ever shown its appreciation of these institutions by liberal legislation and still more liberal grants. In this law, more generously endowing colleges for the education of the working classes, they have demanded an accurate revaluation of the several branches of learning by the more excellent standard of their exact usefulness.

From the vast area of our territory and the absolute exhaustlessness of its developed and undeveloped resources, the indus-God's creation does the plow-share, under the guidance of the rugged plow-boy, and cheered by his merry whistle, annually turn so vast an area of virgin soil, as here; and the marshalled host of yeomen advance more rapidly to conquer and subdue the vast wilderness and rear bright homes - the nestling of American freedom. Where can you turn and behold a grander scene than this land of sister States netted and bound around with highways of steel that groan under the enormous weight of agricultural and mechanical products, as they are whirled along, hand in hand, at lightning speed to meet the demand of foreign marts. Hence, it is an easy task for the unprejudiced mind to discern the true object of Congress in her demand for an education capable of being fairly measured and determined by the well-known rules of value.

The question may with propriety be asked, what has the State done to fulfill her covenants and build up this College. On the first of April, 1873, over ten years from the

the time the present management assumed control of its affairs, the buildings belonging to us were those on the upper hill, known as the Bluemont College build ished in the future, is the only fund that can lings, and on the present College farm was the barn now used for the College building proper, and will be so used until the new one is completed. There was a debt hanging over the institution, amounting to \$41,894.59, for the payment of which no arrangements had been made. Of this amount, the State, by appropriations from public funds, has paid \$30,232.93; and, by enactment, directed the board of regents to issue their bonds to liquidate the remainder and unite them with the endowment fund. This has been done, so that now the outstanding indebtedness of the institution has been either paid or brought within the actual control of the board. Since April, 1873, the College has received appropriations from the State, for buildings and other improvements and equipment of departments, the aggregate sum of \$46,600. including the \$12,500 for the new College building. With this sum of money the barn of 1873 was made a comfortable building for recitations; one of the best apportioned and finest laboratories in the United States has been constructed and partially equipped; a spacious and elegantly arranged horticultural building has been erected and nearly furnished; a structure for mechanical purposes built and a partial supply of tools and machinery secured: while one of the best of barns - one that realizes even Professor Shelton's ideal now shelters our herd of blooded stock. Think you a better showing can be made by any institution that has labored under like disadvantages? The "value received" for the expenditures, from its position "on the hill," speaks eloquently to you and defies criticism. The State through her representative men has done nobly in the past by aiding the College, and we are now in such a position that the children of the State may flock to our halls and receive that practical education Congress intended they should.

While all this has been done for us, the Legislature has not been unmindful of the other branches of our educational system. The "University of Kansas," the classical pride of our young and growing commonwealth, located so grandly upon the commanding eminence where she sheds her rays of knowledge upon the historic city of Lawrence, has received liberal appropriafurther her interests. And while embryo statesmen have appealed in thunder tones to indifferent legislators to consolidate the State University and the Agricultural College, the people have with a determined tread moved steadily on, preserving and advancing each in its proper sphere. No man is such a fool as not to discern that both institutions are as necessary to our educational system as air to life. Between them there can be no rivalry, for there is no identity of interest. Here we cultivate the mental and the physical in those studies that make farmers, mechanics and artisans; and after three or four years of instruction, send them out to add to the wealth of the State. There they cultivate the mind alone, giving to each student that classical education which fits him for professional life; and after six years of application, send him forth as conclusive evidence of their powers to improve.

Long since has the fact been demonstrated that where industrial and classical training are united, in nine cases out of ten the first three or four years of the course awake in laughing at the idea of educated farmers,

the student's mind a strong admiration for the former; while every subsequent year tends to diminish this admiration, and ultimately brings about a complete change; and should you ask on the day of graduation what occupation in life he will select, the answer will indicate a preference for the professions. Hence, the distinction should ever be maintained and kept as broad as the distance intervening between the "historic city," the Athens of Kansas, and the seat of industrial training at the mouth of the Blue.

No one of the sisterhood of States demands so imperatively as this, by the force of the real necessity of its population, the education of its laboring classes. In 1875 nearly sixty-nine hundredths of our population were engaged in agriculture, eleven hundredths in manufacturing and mining, seven hundredths in trade and transportation, and only thirteen hundredths in professions and personal service; and with our great agricultural resources this per cent will increase with our population. Over two-thirds of our entire people are now engaged in the one pursuit of agriculture. This establishes beyond all controversy that great measure of agricultural importance that we have assumed, and speaks more logical pages in favor of the vigorous prosecution of this work at the College, and the maintenance of this as a purely industrial school, than all the orations that could be written.

The student who enrolls his or her name upon the records of this institution has a guarantee that the return will be that which commands cash in the market. The scientific farmer, demonstrating by actual practice that which he has been taught while a student here, apportions the fertilizer to the soil and the seed to the acreage with a nicety only excelled by that with which the educated wife, perchance a graduate of the same class, portions the ingredients of her pastry. He estimates the power of the horse and the resistance of the plow or the drill as readily as she calculates the fit of the garment; and, when asked by their less fortunate neighbor the secret of their success, they point with pride to their Alma

There are really but two sources of wealth: First, production; and second, the increase of values by the direct or indirect application of art. We have seen that over twothirds of our Kansas population belong to the first of these classes, and are real producers. They are scattered over our broad, fertile prairies, tilling the soil and yearly freighting the railroads that penetrate our State with millions in value of products that are carried to markets within and without our boundary, where art applies its mysterious work of transformation. With over four-fifths of our population included in both of these classes, it becomes the plain duty of every man, and especially the statesmen of our commonwealth, to foster an institution such as this, that fits and prepares that larger proportion of our people to prosecute their work intelligently; and when one of these fails in the performance of that duty, or so far forgets the interests of that proportion as to treat lightly an institution that stands alone as the college of the masses, I imagine that outraged industry will smite his brazen cheek and turn him from our representative halls and places of trust and profit. Your speaker not long since heard a prominent professional man of the beautiful Kansas Valley scoff at the idea of practical education and industrial training, and pronounce it a humbug; and,

said: "The more ignorance we have among them, the more and better the grain they will raise." He was evidently actuated by the same motive that prompted Napoleon to say, "A thinking bayonet is the most dangerous element that can surround a throne."

Here I may with propriety remark that the industrialists of this country are alone to blame that a higher degree of intelligence is not found in their class. The farmers of the State, if you please, are themselves in a great measure responsible for any lack in their surroundings, and no work has done more to lift them from the status of ignorance than this agricultural college question. Yet we find men among them who either ignorantly, thoughtlessly or maliciously offer resistance to the progress of this institution. I have stood upon the floor of your legislative halls and heard the representative of a purely agricultural district say: "Mr. Speaker, I'm a farmer, so sot me down for one 'ginst that thar 'propriation. My folks is all farmers. We don't want any big school-house put up up at Manhattan for 'commodation for Riley county. My boy, Mr. Speaker, can just do as his daddy did before him, and I know I don't need any of your 'dustrial larnin', so sot me down 'ginst it," and as he subsided, thinking of his glory and his three dollars a day and mileage, he was lustily applauded by those who thought more of some local measure the farmer had promised to vote for than they did for the true interest of our State. Through the action of such legislators, assisted by the malicious localist, this institution of the masses has come near losing its existence upon several occasions. Everybody who knows anything about the elements that make up our legislative bodies knows that, should the representatives of the agricultural and mechanical interest stand together as one and firmly battle for the true interest of the College, no ill wind could gather sufficient force even to misplace one of the tenderest vines of success. This College is a fixture and a monument to our bold, proud, educational system; and, recognizing the full force of its enemies, we would say to them:

"No edifice was ever reared that an accomplished architect could not demonstrate it to be unsuitable for its purpose.

"No palace was ever constructed that could not be dismantled. The work of experts and the labor of the most renowned artisans can be destroyed by a body of louts who could not fashion one of its humblest pilasters.

"A fool could fire the Ephesian dome, nevertheless it is hardly wise to destroy even the shabbiest shelter until something more substantial is reared to take its place."

This is a State work, a State institution, yet local strife may give strength to those who oppose it. Local contentions and bickerings can do more to remove it from its present beautiful location than all the combined powers of outside opposition.

The husbandman, having planted the seed, waits in patience for its fruit. Year by year new branches are thrown out to the sunshine and the rain; year by year its roots strike deeper into the fertile soil. Care shields it from injury and skill aids its growth until at length the tree is formed, the bud appears, and the fruit ma-Aures. Success is now insured. The husbandman knows, the condition of heat and cold being favorable, that the fruit will be abundant.

So let us, men and women of Kansas, responsible for the future of our children, do our duty to this institution, and its halls by the State appropriations.

will be thronged with eager sons and daughters of toil, its recitation rooms echo and re-echo with recitals of scientific knowledge; its laboratory will compound wisdom, its work-shop forge thought, its farm produce ideas becoming a garden of practical results. The parent will regard it as the great seat of industrial training, and the boy and girl of our broad rolling ocean of land will be taught to look forward to the day when age and advancement in the common schools of our State will fit them to enter its walls and enjoy its benefits. Its graduates will go forth encased in an armour of intellectual steel to do battle in behalf of progressive education, knowing that the character of the graduate fixes the character of the institution; and in turn they become instructors, and the ideas here put in motion have their beneficial effect throughout the length and breadth of our State; and in this institution the industrialist of all ages will feel he has a friend. None can afford to question its future. Its influences have been so strongly felt that thousands who only a short time ago were its enemies are now its friends. Its tendrils have taken hold and are now twining around the great heart of this people. They feel it is for your child, for theirs, and for mine. No institution can more proudly count the beads of success upon its string of life. No college has a more alluring future, for in it Greatness stands, robed in all her magnificent grandeur, with a helping hand, brilliant with diamonds of genius, extended to aid the child of toil onward to gems of

Glancing back along the avenues of time, we behold upon either side monuments of the advanced genius of man that speak to us with such logical force of his work that we are apt to overestimate our progress as a people and become victims of the pernicious thought: Our work is finished - we are perfect! Nothing can be more damaging to our interests. It begets arrogance, arrogance begets carelessness, and carelessness destroys usefulness. The student who bears off so proudly the reward of effort - the diploma — and assumes that the work of life is over, the victory won, and expects to be borne along the highway of success without exertion, makes one of the saddest mis-

My young friends, I admonish you not to entertain such a thought. It would be to surrender your present fortified position. But bear in mind that only the skirmish has been had; that the great battle of life leave these College walls, see that your reserve forces continue well in hand and thoroughly disciplined. Then will you be equal to the contest, and your life's history will be made up of the grandest achievements. Remember,

"If little labor, little are our gains, Man's fortunes are according to his pains."

### THE INDUSTRIALIST.

SATURDAY, MAY 25, 1878.

We ask an attentive perusal of the exceedingly appropriate, valuable and effective oration by Col. Hallowell, presented herewith. It ought to be read by every man in Kansas, and will undoubtedly exert a wide influence.

Mrs. Kingsbury accompanied the Judge this

Mrs. Challiss, of Atchison, made her first visit to the College this week.

Prof. and Mrs. Wilson, of Solomon City, attended the examinations and Commencement exercises.

Senator Guthrie, of Atchison, made a hurried, but to us very pleasant, visit to the College this week, especially examining the buildings erected

Charles S. Huston, of Davis county, Harry Rushmore, of Jefferson, and A. H. Stiles, of Wabaunsee county, all old students, attended the Commencement, and were gladly welcomed by their old friends.

H. X. Devendorf, the wide-awake correspondent of the Topeka Commonwealth, attended the Commencement, and was heartily welcomed by the INDUSTRIALIST, as he always will be. The Commonwealth has lately enlarged to an eight-column sheet that is as neat typographically as it is bright editorially.

The exercises of Commencement week passed off very pleasantly and creditably. Many visitors attended the examinations and expressed their gratification therewith. The orations of the graduating class received many hearty and merited commendations. The crowning feature of the occasion was Col. Hallowell's oration.

The annual college commencement season is about to begin in western universities. The Manhattan institution opens fire next week. They've t a valedictorian out there who, it is said, could fetch tears out of Susan B. Anthony, in spite of her masculine tendencies.—Atchison Patriot.

That same valedictorian drew the tears out of us by uttering a few simple sentences in his "farewell" that we were not expecting. Words that come from the heart are apt to reach the heart.

The Alpha Beta Society held its closing exercises on the 17th. A large number of members and many visitors were in attendance. The debate was spirited, and showed a careful consideration of the subject by the debaters. It was decided that it would be better to abolish the jury-box. The Gleaner was presented in due form, and plainly showed that the editors were not inclined to give it up entirely, but rather to make the last the best. Extemporaneous speaking and other orders of interest were engaged in and enjoyed by those present. The committee on music deserve credit for their fine selections and earnest endeavors to be appreciated.

The Board of Regents met on Tuesday and adourned Thursday evening. Regent W. L. Challiss, of Atchison county, presented his commission and was duly qualified.

The degree of Bachelor of Science was conferred upon the members of the graduating class, Charles S. McConnell, George L. Platt, Amos E. Wilson and Albert N. Godfrey.

The following officers of the Board were elected for the essuing year: President, Stephen A. Wood; Vice-President, W. L. Challiss; Secretary, John A. Anderson.

The salary roll was reduced from an aggregate of \$14,700 to \$12,000 per year, which necessitated some changes in the teaching force. The Board adjourned to Tuesday, July 10th, when the regular quarterly meeting will be held.

United States Marshal Simpson and Assistant United States Attorney Hanback started on a fishing trip yesterday. On the bridge they met Hib Case, and asked him if he "had any worms." Hib said no, and they went on, having failed to procure bait, and thinking it the last opportunity.—Com-

But it wasn't the last opportunity. Somewhere they corralled Secretary of State Cavanaugh, who said he knew a man who had "lots of worms," and the trio rushed frantically from the Manhattan depot to Rocky Ford, where they fished till near midnight. The sport was splendid, only they didn't bring the fish back with them, preferring to eat beefsteak for breakfast. They just love beefhas but just commenced; and when you steak—the bones don't stick in your throat. We had the pleasure of taking the party through the College grounds and buildings and of hearing better-told and funnier stories than ordinarily drop around. Call again.

ENTERPRISE ITEMS.

Prof. Ward preached in the Baptist Church at Junction City last Sunday.

Sam Ferguson is talking of getting up an excursion to Denver to see the eclipse of the

The editor has just returned from the East with one of the most complete job offices ever brought into the State.

The Organ Recital given on Friday evening by Prof. G. H. Lowrey and the choir of St. Paul's Church, is highly spoken of by those in attend-

The heavy frosts last week throughout the Middle and New England States have destroyed the greater part of the fruit crop. In Kansas it is injured a little in some localities, but not in this section.

NATIONALIST ITEMS.

Prof. Stewart has rented the McCollister cottage. Prof. Gale has a new and elegant double carriage. A. A. Stewart and bride will spend vacation in the (honey) moon.

The singing was excellent, by the College choir, on Tuesday evening.

Prof. Kedzie, wife and daughter expect to start for Michigan early next week Mrs. Prof. Ward and mother expect to spend

part of the vacation in Ottawa. President Anderson and family will go to Junction City next month, to spend part of the vacation at their old home.

P. P. Kehoe and wife came down from Clay Center Tuesday. He is looking uncommonly wel

Thus far the fruit in this neighborhood has not been seriously injured, and bids fair to turn out

Mrs. President Anderson's brother and his daughter, from Kentucky, have been visiting their rela-

The town is full of fine-looking strangers— regents, parents of students, educators, quandom students, and many other notables.

Prof. Kedzie showed us a specimen of polished marble, from a recently discovered quarry near Ottawa, which he considers very fine.

Among the bouquets and flowers thrown and carried to the graduates, we noticed a beautiful flower basket carried up by Dr. Blachly.

We saw Prof. Hougham in town this week. He seemed the same pleasant gentleman as in the days of yore. He returns home, probably, next

We never heard, according to Richard Grant White's definition of good English, better language used than that in the oration, on Tuesday evening, by Albert N. Godfrey.

There are few people in town who will not wish the young couple whose marriage is recorded in another column, a long, happy and useful life. Mr. Stewart is a true man, in every sense of the

When A. A. Stewart and bride came into the church on Tuesday evening, their path was literally strewn with roses by the young ladies and gents in the gallery, who showered bouquets upon the happy couple.

The ninth annual commencement exercises of the Kansas State Agricultural College were held in town, at the Presbyterian church, on Tuesday evening, May 21st. The church was literally crammed, many standing and some going away, eing unable to obtain entrance.

The singing was by the College choir, and was very good and pleasing. The essays by the graduating class were all very good. We do not publish them, as they will probably appear in full in the INDUSTRIALIST. We do wish to say that the valedictorian did himself great credit. His essay was concise, and written with grace and elegance. The subject, "The Kansas Farmer," was well

The annual oration, by Col. J. R. Hallowell, of Cherokee county, was very interesting and peculiarly adapted to the people of this vicinity.

We think that President Anderson and the

Faculty can honestly congratulate themselves on the work done in the past year. We were at the College this week, and though we did not go into the buildings, except the mechanical department, we were delighted with the improvement that has been made in the grounds during the year that is past. The State ought to be proud of this College, as we doubt not all the intelligent, clear thinking men and women are. And we who have watched its growth and prosperity for so many years, have for it and its workers nothing but the best of wishes and the hope of its success .- C. F. W., in Nationalist.

### MARRIED.

STEWART-WINNE-At the residence of the bride's parents, in Manhattan, Kansas, Tuesday evening, May 21st, 1878, by Rev. E. Gale, Mr. A. A. Stewart, of the Agricultural College, and MISS ELLA M. WINNE, of Manhattan.

The Industrialist springs to its feet and shakes both its hands in the heartiest congratulations to the happy bride and groom. Mrs. Stewart was for several years a student in the College, and 'A. A." has for four years been the efficient Superintendent of the Printing Department. The marriage ceremony was performed last Tuesday evening, after which the party attended the Commencement exercises. On entering the church, the students in the galleries and other friends showered bouquets before them till their "pathway "was literally "strewed with flowers." It was a kindly thing tastefully done, and had a hearty significance. We trust that the Good Father will yet more royally carpet their future oath with the tokens of his love. In behalf of itself and the craft, the Industrialist pronounces a loving benediction on the twain.

### RAILROAD TIME-TABLE.

KANSAS PACIFIC RAILWAY. PASSENGER ARRIVES.

Going East...... 12:20 P. M. Going West...... 4:10 P. M.

FREIGHT ARRIVES. Going East...... 2:55 P. M., and 10:30 P. M Going West..... 8:20 P. M. and 1:20 A. M. Passengers with tickets are carried on any of

Passengers with the above-named trains.

GEO. C. WILDER, Agent.

S. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Poyntz Avenue, Manhattan. 19-3m Poyntz Avenue, Manhattan.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26

anhattan Bank.—E. B. Purcell, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

SATURDAY, MAY 25, 1878.

### Kansas vs. The World.

With the Chances in Favor of Kansas.

From the Kansas City Journal of Commerce.

"You people of Kansas have the reputation for the biggest liars on the continent," was the doubtful compliment of an immigrant and fellow-passenger from this city down the valley one day this week. And then he added, half apologetically half pat-ronizingly: "We have never blamed you for it, but have laid it to peculiararities of the climate, air, whiskey and such like, you know. Why, to believe the tales you tell would be to increase human credulity a thousand-fold, and then tax it to the utter-

Before the sixty miles' ride was done, we had passed over one of the finest farming areas in the United States, with

MILES ON MILES OF WAVING WHEAT,

up to the top of the stage wheels, and the eyes of my skeptical friend corroborated in language plain and unequivocal the "tales" of the "biggest liars." At supper he inquired of everybody around him—servant girls and all—the price of farms "hereabouts," and before bedtime he had a return ticket to sell to a "scalper." The old man had had a revelation. He took a retrospect of his life, of the narrow scope of his energies, of the long years of "grubbing" in the forests of Ohio to extend his "clearing" to the dimensions of a farm, and realized for the first time the length and breadth and boundless fields of Kansas, with blooming valleys and oval hills - the home of the million—swept and garnished by the hand of God, and he made up a case in his mind—"Kansas vs. Ohio"—aye,

"KANSAS AGAINST THE WORLD,"

and resolved to become attorney for the plaintiff. Two days afterward, when I met him again, he had bought a section near Winfield, and had sent for his family. He had caught the infection badly, and said, "liars or no liars, air, whiskey or what not, henceforth I am one of you." Judging from his new-born enthusiasm, I infer that the reputation of the State, as expressed in the opening paragraph of this letter, will not be materially modified.

And thus they are coming every day of the week. Tempted in the first place by an excursion rate, they take "a whirl out west," mentally resolving never to forsake the old homstead "States." But to see Kansas, as her surface is mellowed by the showers, quickened by the sun, tinted by groves, grass and wild flowers, or glorified by leagues of waiving grain, overthrows such resolutions and conquers all prejudices. It it a convincing revelation to them all, and once convinced they drive their stakes and stop. This has been the experience of two hundred thousand people this year; and cherries are not ripe yet.

THE seed of broom-corn, which has hitherto been considered useless except for planting and an inferior article of food for cattle, has been discovered to be valuable as a breadstuff. It was first used as a substitute for wheat in 1870 and 1871, but like many other good things, was lost sight of, and its manufacture was never carried to success, and never became even partially known until about three years ago. The yield of flour is about one-half in place of two-thirds from wheat. The bran is also as valuable as wheat bran as food for animals. The flour cannot be told from wheat flour, and the bread, cake, etc., is delicate, inviting and delicious, and easily digested. The yield of broom-corn seed is also enormous, a single spear often producing a pint of seed, and the yield has reached 500 bushels to the acre, while it is safe to estimate the average at 100 bushels.—Exchange.

Industrial Education.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. fully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions public schools, it has provided higher institutions questions, which is the school of the sc public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, modicing or theology; and an agricultural college. those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned pro-

fessions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a voca-tion by which money is gained, the ratios were as

10110 11 5 .	
Normal education:	1.13= 1.13
Professional education:	0.43
Lawyers	0.55
Doctors	0.73 = 1.71
Industrial education: In agriculture	59 13
In manufacturing and mechanical	14.63
In personal service	13.89
In trade and transportation	9.51==97.16

AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,-000 out of which all expenses of instruction are 000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving and music. The course of study is shaped with direct refer-

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reck-oned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Dress-Making and Millinery.—Daily instruction and drill in hand and machine sewing: cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

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course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

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in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dept. Agent. Manhattan. Wm. Dent, Agent, Manhattan.

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Club Rates.—The regular price of the Kan sas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the INDUSTRIALIST for \$2.75; or the Farmer and INDUSTRIALIST for \$2.25; or the American Young Folks and the INDUSTRIALIST for American Young Folks and the Industrialist for

Agricultural College Lands. - These and for sale for one-eighth cash, balance in seven and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

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ment for Kansas equal to the best in America.
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This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific subjects.

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the Review and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

33-4w popular taste.

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THIS College furnishes a thorough and direct ducation to those who intend to be Farmers, Mechanics, or to follow other industrial pursuits. As a foundation for each course of study, and for success in daily life, the first object is to make every student an expert in the use of the English Language as an art; and, also, an expert in Practical Mathematics, including skill in the use of numbers; in the use of lines, or Industrial Drawing; and in Book-keeping.

FARMER'S COURSE.

Building on this foundation, the special object of the Farmer's Course is to give the student a practical knowledge of the structure, growth, and practical knowledge of the structure, growth, and value of Plants; of light, heat, and moisture; and of Inorganic, Organic, Analytical and Agricultural Chemistry, as these are related to Plant and Animal Growth; of Economic Zoology; and particularly of Practical Agriculture and Horticulture, including such instruction and drill in the Field, in the handling of Stock, in the Nursery, and in the Wood and Iron shops, as will enable the graduate to perform readily each of the varied operations of actual Farm Life. The Farmer's Course is the leading one of the Institution.

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TUITION ABSOLUTELY FREE!

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CALENDAR: — Fall Term began August 23d, and closed December 20th, 1877. The Spring Term began January 3d, and will close May 22d, 1878.

For further information, apply to JNO. A. ANDERSON, President.

# INDUSTRIALIST

Published every Saturday by the PRINTING DEPARTMENT OF THE

KANSAS STATE AGRICULTURAL COLLEGE

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#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second the degree in which he makes it his own. Hence the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION.

Words and figures are merely instruments with Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematics. quires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

		COUDOR	
	FARMER'S		
FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall
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Practical Agriculture (advanced.) Geology, Mineralogy. Polit. Economy, Practical Law. Zoology. Agricul. Chemistry, Meteorology. Logic.	Entomology. c Chemistry. Geometry. Landscape Analytical C Surveying.	Physiology. Rhetoric. Algebra. Practical Agricul. (elementary). Physics. Industrial Drawing.	Drill in English. Drill in Arithmetic. Industrial Drawing. English Structure. Adv'd Arithmetic, Book-keeping. U.S. History, Industrial Drawing.

### WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

	WOMAN'S	COURSE.	
FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
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Farm Economy, Special Hygien Geology, Mineralogy. Polit'l Economy, Practical La Zoology. Phys'c'l Geography, Meteorolo, Logic,	Botany, Entomology. Inorganic Chemistry. Industrial Drawing. Horticul., Landscape Gardenin Organic, Household Chemistry Household Economy.	Physiology. Rhetoric. Algebra. English Literature. Physics. Industrial Drawing.	Drill in English. Drill in Arithmetic. Drill in Arithmetic. Industrial Drawing. English Structure. Adv'd Arith., Book-keeping. U.S. History, Industrial Drawin.

## MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

#### Department of Botany and Horticulture.

Report of Prof. E. Gale for 1877-8.

To the Board of Regents of the State Agricultural College:

GENTLEMEN: - This report covers a period from Nov. 30th, 1876, to June 30th, 1878. The instruction during this period has embraced, first, in the collegiate year of 1876-7, the teaching of a class in Botany consisting of twenty-two students, and a class of eight in Butler's Analogy; a course of lectures was given to a class of fifteen in Horticulture, and a class of two was instructed in Landscape Gardening. During the present collegiate year, a class of twenty-two students has been taught in has forwarded to us about one hundred Botany. A course of lectures on Entomology has been given to a class of eighteen. A course of lectures on Landscape Gardening has been given to twenty-two students; and to this course was added, as an essential qualification for the landscape gardener, instruction in the elements of topographical drawing. And a class of five, embracing the Seniors, has been taught in Zoology.

As means of illustration in the Botanical and Horticultural Department, we have obtained, through the Agricultural Department at Washington, a collection of seeds, some of which have been planted and others bottled for the use of future classes. We have also received from the same source a valuable collection of dried-plant specimens, a few of which are European, but most of them are from the western mountains and plains. These have all been carefully mounted and put in shape for future use. We have also secured during the past year a good collection of specimens of native Kansas wood; and by exchange, through the kindness of Prof. R. F. Kedzie, a very finely prepared collection of Michigan wood specimens. We have been able also to seure at a very small expense to the College a rude cold-frame, which will answer important purposes for illustration. A good beginning has been also made for an entomological cabinet. With very little actual expense to the College, this collection can each succeeding year be greatly enlarged.

The means of illustration in Zoology should receive the special attention of this Board. The very important relation which Zoology, in its several subdivisions, holds to the industrial pursuits, will certainly warrant the taking of special measures to make the means of illustration in this direction ample. It would certainly be to the interest of the College if a small sum could be placed at the disposal of this department, so as to secure whatever may be of interest in this direction.

The outdoor means of illustration, that is, the orchard, forest, vineyard, nursery, garden and ornamental grounds, can hardly be too highly estimated. Each successive year should add greatly to their value as illustrative apparatus, and will amply repay the small sum required to keep them not only in order but in an improving condition.

Besides this, they should all be made available for such practical experiments as the interests of the State require. It is not assuming probably too much to assert that the grounds now devoted to this department should be held as experimental grounds, in the list which should be discarded without the interests of forestry and fruit culture. The tree planters of the East are looking to us for results. And it will be wise in all our plans for the future to remember that we are located almost in the middle of that great central region where forest culture, upon as grand a scale as the world has ever known, must some time be accepted as a necessity. In recognition of this fact, Prof. Sargent, of the Harvard Botanical Gardens, species of trees and shrubs. These have been planted out, and the results will be carefully noted. We should accept it as a fact that experiments undertaken here in forestry and fruit culture will interest a larger number of people, and facts deduced at this point will benefit a larger region of country, than probably at any other one point which is likely to be selected in the West for many years to come.

Hence, the point aimed at from the first, in the planting of forest and fruit trees, has been to obtain by actual trial that knowledge and skill which would be of practical value to the State, and in some degree to the whole prairie region of the West. The results so far reached have justified the time and expense involved, and are worthy the consideration of those who purpose either forest or ornamental planting in Kansas. With this object in view during the past eight years, plantations of the following varieties of forest and ornamental trees have been made:

Ailantus glandulosa. Ash, White, Fraxinus Americana. Ash, Blue, quadrangul quadrangulata. vividis. Basswood or Linn, Tilia Americana. Beech, Fagus ferruginea. irch. Yellow, Bet Butternut, Jugulans cinerea. Catalpa bignonioides. Chestnut, Castenea. Cottonwood, Populus monelifera. Deciduous Cypress, Taxodium distichum.
Elm, White, Ulmus Americana.
Elm, Red, "fulva.
Elm, English, Ulmus campestris.
English Walnut, Juglans regia.
Eucalyntus in variety. English Waintt, Juguns regus.
Eucalyptus, in variety.
Hackberry, Cellis occidentalis.
Lombardy popular, Populus dilatata.
Maple, Soft or Silver, Acer dasycarpum.
Maple, Sugar, Acer saccharinum.
Negundo or Box Elder, Acer negundo.
Osaga Orange, Maclura aurantiaca. Osage Orange, Maclura aurantiaca. Walnut, Black, Juglans nigra.
Shelbark hickory, Carya alba.
Sweet Gum, Liquidamber styraciflua.
Willow, White, Salix alba.
Willow, Golden, ""
Willow, Weeping, in variety.
Willow, Kansas, perhaps va, S. fragilis.
Willow, Osier, S. viminalis? And about eighty other varieties.

Of Evergreens or conifera we have tested to some extent the following species:

Arbor vitæ.

Balsam Fir, Abtes balsamea.
European Holly, Nex aquifollum.
Juniper, Red Cedar, Juniperus Virginiana.
Juniper, Irish.
Juniper, Trailing.
Hemlock, Spruce, Abes Canadensis.
Larch, European, Larix Europea.
Pine, White, Pinus strobus.
Pine, Pitch, Pinus rigida.
Pine, Scotch, Pinus rigida.
Pine, Scotch, Pinus sylvestris.
Pine, Austrian, Pinus Austriaca.
Pine, Table Mt., Pinus pungens.
Pine, Mountain, dwarf. Arbor vitæ.

Pine, Penon, P. edulis. Spruce, White, Abies alba. Spruce, Norway, Abies excelsa.

During the past eight years, several of the above-named varieties have been repeatedly replanted, so that their value for culture in this State is quite well settled. On further trial, we are forced to place the following: Arbor Vitæ (all varieties), Balsam Fir, Beech, Birch, Eucalyptus, European Larch, English Walnut, and most varieties of the Weeping Willow. On the list for further trial, and to be planted only for experiment, we should place the following: Butternut, Chestnut, Irish Juniper, Scotch Juniper, Trailing Juniper, Penon Pine, Sugar Maple, Sweet Gum, Norway Spruce, Scotch Pine, and White Pine. On the list of those which have been so far an unquestioned success, we place the following, though in some cases our experience ing, though in some cases our experience has been too limited to encourage immediate extended culture: Ailantus glandulosa (for high, dry localities alone), White Ash, Green Ash, Basswood, Catalpa, Cottonwood, Deciduous Cypress, White Elm, Red Elm, English Elm, Soft or Silver Maple, Box Elder, Osage Orange, Oaks, Black Walnut, White or Gray Willow, Kansas Willow (S. fragilis?), Osier Willow (S. viminalis), Red Cedar, White Spruce, Table Mt. Pine (P. mangens), Austrian Pine, Pitch Pine, Dwarf pungens), Austrian Pine, Pitch Pine, Dwarf

It is just possible that the past eight years have given us a severer test upon the value of the several species of trees than we shall ever experience again, but the chances are quite as much in the other direction; hence it will be wise to prepare to meet like disasters in the future.

In selecting species of trees for our first planting, we should take those that are native to Kansas soil. The comparative value of these varieties, and their comparative immunity from insect enemies, demands a fuller discussion than the limits of this paper will admit; and so I can simply endeavor to indicate the relative value of our leading native trees for forest culture, all things considered, by placing them in the following list, with the most valuable first: Black Walnut, Green and White Ash, Red Cedar, Kansas Willow (S. fragilis?), Box Elder, Honey Locust, Coffee Bean, Hackberry, Cottonwood, Soft or Silver Maple.

Experience teaches that in selecting from exotic trees for ornament or forest culture, great caution is required. Many foreign trees are worthless here. A few, however, promise well, and hence their culture should be encouraged. At the head of this exotic list we place the Osage Orange. The tree is hardy, grows quite rapidly, and is really one of the most durable and valuable of timber trees, while it can be planted at less cost than almost any other species.

Our experience with the Ailantus glandulosa encourages us to believe that, while it has long been known to be worthless upon our rich bottom lands, for high, dry and exposed uplands it will prove quite valuable. The wood is hard, fine grained, very unlike what the first appearance of the tree would indicate. If planted thickly, in three years it will shade the ground and require no further care except occasional thin-

The Catalpa, also upon our highest and dryest soil, makes a healthy growth, and at the same time can be grown upon our lower and richer lands. This tree has some attractions for ornamental purposes, but is more to be prized for its timber.

The Deciduous Cypress has so far proved entirely hardy, resisting the combined effect of locusts and drought in 1874, upon both bottom and upland. The timber is durable [Concluded on fourth page.]

SATURDAY, JUNE 1, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

### It Depends on Your Standard.

Because the Agricultural College, in pro viding a liberal education for the industrial classes, teaches some of the trades as well a the useful sciences, there are a few educators who lose no opportunity to sneer at and misrepresent it. Yet how an industrial education can be "practical," that is "ready or fit for use," without embracing manual skill, as well as scientific knowledge, is one of those ponderous conundrums which crushes one by the weight of its sheer stupidity. For example, what sort of a printer would he be who had mastered the "book knowledge" of that intricate art, but had never set a line or justified a form? He might be able to read Latin, Greek or Hebrew, and to speak French, German or Italian; he might have the usual collegiate smattering of "scientific" botany, chemistry and the ologies; he might be an expert in the fancy mathematics as published in the standard text-books, but never used by working engineers; and he might possess a mental "culture" of such high polish that his friends could use it as a mirror when shaving; but when this collegiate printer should try to make a living in Kansas as a compositor, what wages would he earn, and what sort of a support would his family receive? This same question looks you pleadingly in the face and importunately begs for a candid and helping answer whether you consider the case of the farmer, wood-worker, metal-worker, dress-maker or

There is an element in the United States practically overlooked by the professional advocates of "the higher education," which element has nevertheless a vivid realization of its own condition and a burning desire for the bettering of that condition; and this element is sometimes designated as the "working classes," but may more justly be termed "the people." In point of numbers it constitutes ninety per cent of the nation, in point of vocation ninety-seven per cent in point of paying taxes and voting a greater per cent, and in point of imperatively needing whatever of effective aid education can furnish, a far greater per cent. If the educational machinery of the nation is to be run for the special benefit of the chosen few, then may it be expedient for educators to ly taught as by any other professors anyignore the needs and rights of this element. But if that machinery, established by public law and maintained by public taxation, is to be run for the benefit of the vast majority of the people, and for the benefit of those who have the greatest need of all the help which education can give, then this element cannot much longer be overlooked either as a matter of justice, of brotherly kindness, or of safety. It makes no difference to the masses whether the failure of the educational system of the United States to produce the practical benefits which they have a fair right to expect that it shall produce, is owing to a lack of willingness, a lack of judgment or a lack of skill upon the part of those controlling it; and sooner or later the people will wake up with a red-hot demand that either the public educational machinery with its public taxes be stopped, or else that it turn out an article which the masses find to be useful and beneficial in their daily labor. He who does not foresee this demand is simply closing his eyes to current events all the way from Boston to San Francisco.

Now, there are three lines which educa-

tors may follow: First, they may teach pure knowledge as abstract science, and aim to effect the "mental discipline" and "culture" of the pupil; second, they may teach the several trades alone, without any instruction in mental branches, and aim solely at the development of the manual skill of the pupil as an artisan; third, they may teach that knowledge which has a real value to the working classes, thus giving intelligence and mental power, and also require that drill in the manual labor of some industrial vocation which shall enable the pupil to earn his living thereby, be he farmer, carpenter or smith, or be she a dress-maker, printer or operator. The latter is a combination of the other two, aiming to make the student thorough and intelligent in useful knowledge on the one hand, and, on the other, expert as a craftsman.

The Kansas State Agricultural College has taken this third line, and we very much mistake the equities and humanities in the case if it ought to follow any other, or if the people would permit it to be run on either of the other lines. Because, a farmer has precisely the same right to that scientific knowledge which will enable him to do his daily work with less effort and greater success than now, that a lawyer has to some other scientific knowledge whereby he can earn money easier. And it is from this right that the necessity for shaping the knowledge taught according to its utility in the proposed vocation springs. While skill in framing syllogistic puzzles may be useful to a lawyer, it does not enable a farmer to raise more wheat or a mechanic to do more work. And, on the other side, a girl who must earn her own living and who can do so easier and better as an operator than at the wash-tub, has quite as great a right to be drilled in the use of the telegraph key, has the running-gears of a preacher a right to be drilled in the art of oratory. These illustrations sufficiently indicate the point in all the other industrial vocations.

When we started on this third line four years ago, the howl upon the part of some educators was that the trades couldn't be taught in a college; but the achievements of the Institution in this respect have caused that cry to sink into a distant echo. And now their mournful wail is that the course of study is too practical; that it doesn't contain enough science; and that because a student is not kept here six or more years, the course is not sufficiently "thorough." Well, if this College is maintained for the benefit of the "higher education," perhaps that course isn't; but if for the benefit of boys and girls who have to work their own way through college and life, and who can't spare so many years, perhaps it is! The facts will show that the several sciences embraced in the course are useful; that they have been as thoroughly and efficientwhere; that their mastery by the pupil has been as perfect, and that the present wail is is as unfounded as the old howl. This is a classes in the industrial vocations, and not a university for "the higher education," whatever that phrase may happen to mean. The State has already one good University, and it doesn't need two; but it does need precisely such an education as is here furnished.

On this subject, as on all others, the opinion men form will largely depend upon the standard by which they measure. He who judges solely by the "mental discipline' standard, would arrive at a very different conclusion from that reached by him who has the "exclusive trades" standard alone; and neither would hold the same opinion as that reached by him who adopts the com-bined standard. It depends very much on your standard.

Correspondence of Topeka Commonwealth. State Agricultural College.

Commencement Exercises,---Colonel Hallowell's Oration.

Маннаттан, Мау 22, 1878. The ninth annual commencement of the Kansas State Agricultural College commenced on Sabbath evening last with a sermon to the graduating class, by President discourse was very fine; and the sound, practical sermon is said to have been one of the best ever preached in this beautiful

On Monday and Tuesday examinations were held at the College and in the various recitation rooms. These examinations were conducted fairly and honorably before the public, and many were the expressions of praise uttered as question after question were properly and promptly answered. It is to be regretted that there were not more of the public present to enjoy these very interesting exercises. It is but just to say that all the students conducted themselves honorably, and gave evidence of the thorough training they have been subjected to by the different professors.

The crowning point of the great and much-dreaded day by the students was reached on Tuesday evening, when the graduating class of 1878 came before the public in the Presbyterian Church to receive their diplomas. It is needless to say that the church was filled to overflowing; many could not gain admittance and left, others stood outside looking and listening, at the windows. Truly it was an event that Manhattanites should be proud of, and were, as the presence of the people robed in their best fully attested. But one thing seemed to be lacking to complete the scene, and that was the almost entire absence of flowers. None were visible. Had there been a profusion of nature's beautiful roses, lilies, and other flowers, it would have added much of beauty to the scene. I can blame no one as much as the resident Regent, Major N. A. Adams, and the only excuse he has to offer for this negligence, is that Manhattan has so many beautiful ladies that no other blossoms were required.

The singing by the College class was plendid, and some difficult passages were inely executed.

President Anderson was "at home" in conducting the exercises of the evening. The orations were as follows:

"The Practical Man." Amos E. Wilson, Solomon City.

"The Importance of the Mechanic Arts." Charles S. McConnell, Manhattan. "The Self-Thinking Laborer."

. Platt, Manhattan. "The Kansas Farmer." Valedictorian, . N. Godfrey, Madison.

The orations were all well delivered, and it would be difficult to select the one who did the best. All did well, and their remarks were ofttimes received with applause.

The closing remarks of Godfrey, in his bidding, on behalf of his classmates, Colege students, members of the Faculty, President Anderson, and the State Regents, farewell, was very affecting, and came from his heart more than from his lips.

President Anderson then, in a few wellworded remarks, conferred the degree of Bachelor of Science on each of the members of the class, after which Col. J. R. Hallowell, of Columbus, Kansas, delivered the Annual Oration. Instead of commenting on this oration I have secured a portion of it, at least that portion that every Kansan should read, as much of it pertains to the history of our State. The Colonel College for the education of the working delivered it in a splendid manner, and his audience were more than pleased and delighted.

Concerning College Lands. No. V.

In former articles I have given the description of lands selected under the grant to endow the Kansas State Agricultural College, with the date of selection, and the quantity of land in each list; showing the actual aggregate of lands, by measurement, to be 82,313.53 acres, instead of 90,000 acres. This shortage of 7,686.47 acres, as before stated, was not occasioned by any failure on the part of the Regents to look after the endowment, but because the location of the Kansas Pacific Railroad, or Union Pacific Eastern Division, as it was then called, by ruling of the Land Department at Washington, made all lands within the limits of the railroad grants count as "double minimum," or two acres for one. If any person is disposed to find fault with the fact that the Agricultural College lands are held at a figure a little above the market price of adjacent lands, he may well bear in mind that nearly eight thousand acres of these lands cost us double price!

In selecting the lands, the proper quantity Anderson, in the Presbyterian Church. appears to have been chosen in the first list,

The house was densely crowded, and the but intervening rights of settlers and railroads made necessary a second and a third selection before the full amount was certified to the State by the Secretary of the Interior. That effort was made to secure the lands first chosen, or at least the full number of acres to which the State was entitled, is evidenced by the records of the Board of Regents. At a meeting of the Board held at the College building, June 26th, 1867, the following record was made

> "Hon. R. McBratney appeared before the Board and made a proposition to act as agent of the State, at Washington, to secure the balance of Agricultural College lands located on the Republican River, claimed as railroad lands.'

> "On motion the State agent for the sale of College lands was appointed a committee to confer with the Executive Committee with reference to employing an agent or attorney to present the facts to the Secretary of the Interior, and to have charge of the case until final decision is rendered in the mat-

> Adverse decision was given, and the quantity of land remained as stated above. There is probably no likelihood of obtaining indemnity from the General Government for this shortage in the endowment; but, in view of the recent indemnity obtained for the general school fund of the State, it might be well to re-open the case at Washington, at the proper time.

> At this date there are yet unsold of the first list of lands, 26,760.22 acres, as follows:

> > 1 1 - 1 2 2 1 . 11

I			ip.	east	acres.			Township.	east	83.
I	Descrip-	Section.	Township	Range e	acı	Descrip-	Section.	nsl	Range e	acres.
I	tion.	cti	m	an	No.	tion.	cti	mo	an	No.
I		S	I	E	X		8	I	R	X
I	Se 1/4 & S					1/4	5	15		490.24
١	Ne 14 E 1/2 E 1/2 So 1/2	29	13	1	240	All	7	15	4	627.60
١	Ne 1/4	32	13	1	160	Se 1/4 E 1/2 Sw 1/4	18	15	4	160
١	E 1/2	24 25	1 1	1 1	320 320	E 1/2	19 15	15 15	4	320 160
I	Se 1/4	35	1	1	160	All	29	15	4	640
l	DU /4	1	2	1	320.39	All	31	15	4	638.76
i	W 1/2 W 1/2	19	1	2	303.60	Nw 1/4	33	15		160
١	W 12 W 12	30	1	2	305.58	Sw 14	17	1	5	160
I	All	5	2	2	632.48	W 1/2	20	1	5	320
ļ	W 1/2	6	2	2 2 2 2 2 2 2 2 2	311.98	Sw 1%	3	4	5	160
١	13	7	2	2	320	S 1/2 W 1/2 & ne	4	4	5	320
į	W "	8	2	2	320	W 1/2 & ne				480
١	E "	10	2	2	320	Se 1/4	9	4	5	100
١	W "	11	2	2	320	Se 1/4	17	4	5	160
ł	W "	14	2	2	320 160	S 1/2 All	18	4	5	304.84
ı	Ne ¼	23 28	2	0	160	All	21 35	5	5 5	640 640
l		18	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3	320	All but E	90	9	9	548.34
Ì	E ½ Ne ¼	19	9	3	160	1/2 & se				040.04
۱	91/	29	2	3	320	13 4 50	1	6	5	
١	Se 1/4	32	2	3	160	E 1/2	2	6	5	313.02
ı	S 1/2	15	2 3	3	320	Ne 1/4	15	6	5	160
ı	Nie	22	3	3	320	Ne 1/4	28	2	6	
ı	0 1	23	3	3		W 1/2	33	2	6	
l	Se 1/4	24	3	3		Ne 1/4	8	5	6	160
	Nw "	5	2	4	162	Sw 14	15	5	6	160
ı	Ne & sw	0			900 01	Sw "	22	5		160
١	S 1/4 N 7.	6	2	4		Nw 1/4	23	5	6	160 160
١	S 1/2,	14   23	2 2	4		Sw qr All	4	6	6	647.27
١	W "	18	0	4		Ne 1/4	9	6	6	
ı	Sw. 1/4	19	2 2	4		Nw 1/4	10	6	6	
I	Se 1	31	3	4		Nw 1/	25	2	7	160
١	81/4	32	3	4	320	W 1/2 & se		-		1
I	S 1/2 All	18	14	1	627.72	1/4	14	3	7	480
ı	F1/	19	14	1	320	W 1/2 & se Ne 1/4	15	3	7	160
ı	Wit	20	14	1	320	N 1/2 & se				
ı	Se 1/4	14	14	1	160	1/4	24	3	7	480
ı	200	15	14	1	160	Ne 1/4	25	3	7	160
١	N 1/2 Ne 1/4	26 34	14	1 2	320 160	AII	32	1	8	
١		7	14 14	1	154.27	Se 1/4	12	2 2	8 8	160
I	SW 4	25	14	2	320	Ne 1/4 S 1/2	2	3	8	100000000000000000000000000000000000000
I	Sw 14 S 1/2 Ne 1/4	23	14	4	160	S 1/2	3	3	8	
١	W	26	14	4	326	N "	10	3	8	
I	N 1/2	34	14	4	320	Nw 1/4	11	3	8	
I	Ne 1/4	3	15	4	162.80	Ne 1/4	4	5	8	154.63
I	Nw 1/4 &	1				Sw 12	10	4	5	160
١	se 1/4	4	15	4	324.17	S 1/2	2	2	6	320
I	W 1/2 & ne	1	1	1		Ne 1/4	11	2	6	160
١										

Of the second list, 1,407 acres, as follows: 

Of the third list, or double minimum lands, 4,800.12 acres, as follows:

Description.	Section.	Township.	Range east	Actual No. Acres.	No. Acres Reckoned.
Sw qr	8	1 10	4	160	320
W 1/2	32	10	4	320	640
All	4	9	5	636	1272
N 1/2 & sw qr	10	9	5	480	960
Sw qr	14	9	5	160	320
N 1/2 & SW 1/4	22	9	5	480	960
Ne 1/4 & sw 1/4	32	9	5	320	640
N 1/2 8 e1/4	12	10	5	480	960
N ½ 8 e½ W ½	24	7	5	320	640
Se qr	32	9	6	160	320
Sw 1/4	6	10	6	164.12 ·	328.24
All	8	10	6	640	1280
Nw qr & se qr	20	8	6	320	640
Ne qr	18	10	4	160	320

Being a total of 32,967.34 acres. Now, I have done with these solid figures, and will present some other facts in next article.

L. R. ELLIOTT. Manhattan, May 15th, 1878.

SATURDAY, JUNE 1, 1878.

We are in receipt of an invitation to attend the University Commencement next week.

A. A. Stewart is ineffably happy, and radiates beams of joy as a red-hot stove does heat.

The press is promptly and cordially endorsing Chief-Justice Horton's views on jury reform.

It is slightly quiet around here since the students left, and we would like to see them again.

Arthur T. Blain has been engaged by Prof. Kedzie to keep his weather records during the vacation.

The papers are giving hearty notices of Col. Hallowell's oration at the Agricultural College, and both the address and its author fully merit them.

Mr. Bennett has a lively force at work in the carpenter shop getting out frames and things; and Major Adams is steadily rolling out great piles of

The examination of teachers applying for State certificates or diplomas will be conducted this year by county superintendents, from August 26th to August 28th.

Count the Industrialist in for the editorial excursion to any place and all the time. It takes a good deal of rushing around to maintain the dignity of a paper of this size.

Mr. D. P. Leonard, of the Western School Supply Agency, Topeka, and representative of that livest of all the educational journals, the Calendar, gave us the pleasure of a call this week."

If this drouthy weather isn't stopped before long, some fellow will start the howl that Kansas is too wet to raise crops, and advise everybody to strike for a dry country, say Arizona.

There will be a demand for Kansas broom-corn on European orders. It wouldn't be surprising if America would yet supply the European paternal with switches for dusting the youthful European

Mr. Winne is pushing the stone-work on the new building, and is away ahead of the "time-table" of his contract. The window-sills of the first story are set, and the partition walls are climbing up to enjoy the view.

Prof. Ward and family have gone to Ottawa, Prof. Kedzie and family to Michigan, Prof. and Mrs. Platt go to Lawrence next week. Our family will make a brief visit to Junction City, but this undersigned will be at Manhattan most of the

The keys of the College library have been left with A. A. Stewart, who will attend to the duties of librarian during vacation. The library will be open every Friday afternoon, from two to four o'clock. Persons desiring books from this source will please bear this in mind.

Clement O. Smith started for his home in Lyon county last Thursday evening. Mr. Smith entered the College a year and a half ago, has taken the regular course with printing as an industrial, and to-day has more practical knowledge for the time spent than can be obtained at any other institution in the United States.

The eighth semi-annual meeting of the Kansas State Horticultural Society will be held at Garnett, on Wednesday and Thursday, June 19 and 20, 1878. The M., K. & T., Kansas Pacific and L., L. & G. railway companies, will pass all persons attending the meetings on payment of full fare going, and one-fifth fare returning. The citizens of Garnett have generously offered free hospitality to all persons attending from abroad.

Book us for our share of brass-mounted airs by the Emporia band. Though the Industrialist never puts on airs, and never, no never, blows, yet does its tuneful soul delight in such blowing as that band has the reputation of doing. By the way, Stotler, is there a fat man in it, - one with a projection like a big drum under his vest? No band is complete without that type of man, and we want all the "trimmings."

The Wilson Citizen announces that T. Dwight Thacher, of the Lawrence Journal, contemplates writing a history of Kansas. By virtue of his brains, education, editorial skill and Kansas experience, Mr. Thacher is just the man to set forth the cause and effect of Kansas deeds. His book would be vigorously and charmingly written, fair in statement, philosophic, and would sell like hot cakes. If Thacher doesn't write that history, Gilmore will thrash him, and we will pay Gilmore's

And now it appears that the late Prof. Henry, the most distinguished of American scientists, began his education as an apprentice at watch-mak-

ing, and was an intimate friend of a printer's apprentice named Thurlow Weed. No two men have wielded greater power in their respective circles. Which fact, together with a car load of similar instances, ought to make "the higher educationists" wonder why it is that the world as a school turns out so many men of greater practical power than do the classical and scientific colleges.

After copying the Industrialist's notice in regard to the last meeting of the Board of Regents, the Nationalist adds the following:

Prof. Gale and Sup't Todd are no longer connected with the Institution. The former has been a professor for seven years, and Prof. Todd has had charge of the Mechanical Department since its organization. Both are very excellent men, and we regret the financial situation seemed to render a diminution of the number of teachers necessary. However, we presume that both gentlemen have other occupations right at hand, at which they can make as much or more than they were receiving from the College. They carry with them the respect and esteem of all.

Superintendent Lemmon appeals to county superintendents to interest themselves in securing accurately the locations of all school-houses in their counties, to be used in the revised maps of the biennial report of the State Board of Agriculture, which will be published this fall.—Topeka Calendar.

The largest paving stone we have seen in town was recently delivered at M. L. Robinson's new stone residence. It was 10 feet wide, 16 feet long, 8 inches thick, and white almost as marble. It was brought into town by three yoke of oxen, and was delivered in nice state. The quarries east of town will be hard to beat in any State.—Winfield

Two of the most promising young men of Riley county were married last week. One was Mr. A. A. Stewart, of the Agricultural College, a printer, and a good one. The other one was Mr. Geo. W. Campbell, formerly a typo, but now a young mer-chant of Ogden. If their consorts are as good as they are upright, they are possessed of treasures indeed. We heartily wish the young folks joy in their new lives.—*Enterprise*.

Col. Hallowell, in delivering his splendid address at the commencement exercises before the State Agricultural College, at Manhattan, made the following happy hit: "Upon what portion of God's creation does the plow-share, under the guidance of the rugged plow-boy, and cheered by his merry whistle, annually turn over so vast an area of virgin soil as here or the merchaled botts. area of virgin soil as here, or the marshaled hosts of yeomen advance more rapidly to conquest, subduing the vast wilderness and rearing bright homes—the nestling of American freedom?" We saw the address in the daily Commonwealth of May 25, and should like to publish it complete, but it is too long for our columns.—Salina Advoca

Having knowledge in the head is one thing ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly underyet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

Dress-making. Printing. Frinting.
Telegraphy.
Scroll-sawing.
Carving.
Engraving.
Photography.
Instrumental Music.

FOR FEMALE STUDENTS.

One of the closing paragraphs of Noble L. Prentis' lecture is a whole lecture in itself. It is sound advice. "And what can we learn from the old country? By we I mean the people of Kansas. went there as a Kansan, my fellow passengers called me 'Kansas,' and it was the only nickname I was ever proud of, and I saw things with Kansas eyes, and it seemed to me the lesson we should learn is that of steadfastness. England is great because her people love her very earth. England is beautiful through centuries of patient cultivation. The undulating surface of Kansas is not unlike that of England, and we have a brighter sky and a richer soil. Here let us rest. Let us not be driven to and fro like a weaver's shuttle, by drouth and grasshoppers, and a vague uneasiness which is not enterprise. Here let us rest, and trim our hedges and plant trees and build homes for our grandchildren to live in. Here let us rest, until we have a fairer England, a thriftier Scotland, and a greener Ireland."

### NATIONALIST ITEMS.

A. Todd's new house is up sufficiently to make it manifest that it will be a fine-looking building when completed.

Let no wheat raiser fail to cut all the rye from his wheat fields. A very few grains of rye will reduce the grade of the wheat. Therefore, cut it

George Platt has gone to Vienna to teach music during the College vacation. He taught there last summer, and already has quite a number of pupils

W. H. Bower is having the building just east of the Episcopal Church, that has been used as a school-house, moved a block further east, and will occupy it himself.

We notice the white maple moth all over town. If they are killed now we can save the foliage of our trees. Kill them early in the morning or early in the evening.

Last week we met Dr. Challiss, the new Regent of the Agricultural College, and found him to be a number one man; and his wife appears to be the same kind of a woman.

We omitted to mention, last week, that John Winne returned home to attend his sister's wedding, and also brought a broken arm, caused by a runaway team some three weeks ago. Dr. Lyman is attending him.

#### THE COMMENCEMENT.

The Presbyterian Church was crowded last Tuesday evening, as it always is upon the annual recurrence of this occasion. The youthful choir, under the direction of Prof. Platt, occupied the gallery, and regents Hallowell, Challiss and Wood occupied the platform.

The exercises opened by invocation, followed by the anthem, "Happy is the Man," by the choir. "The Practical Man," by Amos E. Wilson, then claimed the attention of the audience. Mr. Wilson is a son of Prof. Wilson, of Solomon City, one of the best educators in the State, and his son bids fair to be a "tobin of the old blok". His arbitate fair to be a "chip of the old block." His subject was well handled, well spoken, and would read well. Chorus, "Home by the Sea," followed, and was rendered in such a spirited manner that almost the entire audience turned their backs to the platform and gazed upward with ears and mouth distended, drinking it all in. By the way, we are of the opinion of Mr. Reynolds: it is just as absurd to have the choir in the gallery behind the audience as it would be to have the speakers there. "The Importance of Mechanic Arts," by Chas. S. McConnell, followed next. Charlie is a Manhattan boy and a very modest young man, and to get up before a large audience of his companion and consistences and all of the critical states. panions and acquaintances, and all of them criti-cal, was worse to him than facing a gatling battery, and he exhibited some confusion at first. But he had studied his subject well, and the bouquets he received at the conclusion attested to his popularity and the effect his oration produced.
Some more singing by the charming choir, the

audience rising, and then Geo. L. Platt gave us his ideas on "The Self-Thinking Laborer." Mr. Platt's manner of speaking was very energetic and forcible, making his points and clinching them with voice and gesture that indicated the speaker's belief in what he said and his determination that the audience should also believe as he did.

The valedictorian, Albert N. Godfrey, then took the floor and delivered an excellent oration on "The Kansas Farmer." Mr. Godfrey was an assistant in the famous "Grasshopper Commission," and his articles on that subject were wide-

The degrees were then conferred upon the graduates by President Anderson, and with the aid of their own good sense and the practical education they have received at the Agricultural College, these young men are pretty well prepared to com-mence the battle of life.

The annual oration by Col. J. R. Hallowell, of Cherokee county, was listened to with close attention. The Colonel has a clear, sonorous voice that commands attention. His oration, which has been commands attention. His oration, which has been published in the INDUSTRIALIST, ought to be, and no doubt will be, widely read—especially his sound advice to the people of this place. A chorus, "Hold Your Head up Like a Man," by the choir, upon which President Anderson said, "that is just what the College intended to do," and the benediction, and then the audience slowly dispersed.—Manhattan Enterprise.

### DIRECTIONS TO APPLICANTS.

### TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he

will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as posssble.

### GRADES.

Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an exami-nation of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one

make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed number of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

### EXPENSES.

There are no charges whatever for enrollment. attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas or the bindred spiritual and spiritual spiritual and spiritual diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instru-ments or tools, in both the literary and industrial classes marked out for them, without any charge And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and

the use of pianos or organs. The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books which can be one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

#### LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.-Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. — When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

#### AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make onehalf their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

### RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.
3. Penalty: "Leave!"

PUBLICATIONS. The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Depart-ment, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Education. Price, 75 cents a year. Address A. A. Stewart, Manhattan.

Spring Term 1878.—Began Thursday, Jan. 3d, and will close Wednesday, May 22d.
Full Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

### RAILROAD TIME-TABLE.

### KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going East..... 12: 20 P. M. Going West..... 4:10 P. M.

### FREIGHT ARRIVES.

Going East...... 2:55 P. M., and 10:30 P. M Going West..... 8:20 P. M. and 1:20 A. M. Passengers with closes. the above-named trains.

GEO. C. WILDER, Agent. Passengers with tickets are carried on any of

H. S. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Fur-nishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan.

Manhattan Bank.-E. B. Purcell, Banker; Jno. W. Webb, Cashier. A general banking business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

[Concluded from first page.] and exceedingly valuable for many purposes. This tree certainly demands more extended trials here and in different portions of the State. We call special attention to this tree from the fact that experienced tree planters of the East have discouraged its trial because it did not seem reasonable that a tree which grows so luxuriantly in the swamps of the South should succeed on the bluffs of Kansas, forgetting the fact that in the South this tree adapts itself both to the dry uplands and to the swamps. Our eight years' experience leads us to anticipate sure and ample returns from the culture of the Deciduous Cypress on

While disposed to encourage the planting of the trees above named, when they can be obtained at reasonable rates, we believe as a rule that it is safe for the general planter to invest in exotic trees with great caution, for many which do well in other portions of the country will utterly fail when planted on average Kansas soil.

Kansas soil.

Another point has been clearly proved by the experience of the past eight years, and that is that for forest purposes trees should be planted closely, thus condemning most positively the provisions of the "timber act," which permits the planting of forest trees "at a distance not exceeding twelve feet."

Three and four years ago a large number of flowering shrubs were selected and planted with the view of testing their ability to endure our climate. I give the following list with results stated in brief:

Tartarian Honeysuckle. Hardy.
Clithia alnifolia. All dead.
Spirea. Ten or twelve varieties, all hardy.
Tamarix Indea. Tender.
Cephalanthus occidentalis. Native, hardy.
Forsythea Fortunii, Forsythea Viridisinii. Tips winter kill.

Deutzia Fortunii, Deutzia Scabra, Deutzia Crenila, Deutzia Crenila pl. fl. Tips winter kill.
Calycanthus Floridus. Tender. Calycanthus Floridus. Tender.
Hypericum prolificum. Hardy.
Philadelphus coronarius. Hardy.
Berberis vulgaris. Hardy.
Berberis. Purple foliage. Hardy.
Cydonia Japanica, (Japan quince.) Hardy.
Symphoricarpus Vulgaris. Native, red, hardy.
Weigelia. Four varieties, all winter kill at the

tips.
Althea. All tender.
Syringa Vulgaris (*Lilac*). Hardy.
Viburnum (*Snow-ball*). Do not often succeed

Amelanchier Alpina, June Berry, Shed Berry etc. Hardy. Amorpha fructicosa (False Indigo). Hardy.

In the interest of ornamental culture, other species of shrubs should be collected and tested. And it is believed that no better service can be done in this direction than to collect the shrubs and small trees from our own forests which are worthy of culture, and so plant them upon our grounds as to call the attention of ornamental plant-

The purpose of this department to test varieties of fruit upon these grounds has been repeatedly referred to in former reports, and need not be dwelt upon here.

The ornamental grounds have received some attention since our last report. For

reasons well known to the Board, it has been found out of the question to secure any completed plan of the entire grounds, and hence it has seemed necessary either to lay sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher. out drives, walks, and plant trees upon a plan which would be subject to some material modifications in the future, or to leave all such work until all buildings and other matters were fully determined upon. The Board wisely, as we think, have chosen the former course, and hence by your direction a large number of trees have been planted and portions of the ground seeded. In order to secure anything like a harmonious or desirable condition of the grounds, that portion embracing the public road and south of the same should be laid out and trees planted at the earliest possible time. Respectfully submitted.

E. GALE, Sup't Hort. Dep't.

## Industrial Education.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. fully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, for the special training of public for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will for the practical education of those who will engage in any of the "industrial professions or engage in any of the "industrial professions or pursuits," as distinguished from the "learned propursuits," as distinguished from the "learned pro-

fessions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a voca-tion by which money is gained, the ratios were as

Normal education: Ministers..... Lawyers..... Doctors...... 0.73= 1.71 Industrial education: 

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. AGRICULTURAL COLLEGE.

ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its maintenance.

LOCATION.

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a heaterful. course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving and music.

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reck-oned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Dress-Making and Millinery.-Daily instruction and drill

drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the highest breeding. Address E, M. Shelton, Manhattan, Kansas.

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School District, Township and County Bonds .- District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan.

Educational Calendar.—A wide-awake, spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published lished monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W. Martin, Topeka.

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

Farming for Profit.—Special courses in Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

Habits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

ough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer. rather than for the benefit of the astronomer.

Phonography.—Instruction given in Pitman's Style of Phonography, recommended and in use by the leading reporters of the United States. A course of thirty-five lessons by mail. To any person having a thorough knowledge of short-hand, an honorable and lucrative living is at command. Reference given. For terms and particulars, apply to or address Charles H. Torrington, Manhattan, Kansas.

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sas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the Industrialist for \$2.75; or the Farmer and Industrialist for \$2.25; or the American Young Folks and the Industrialist for \$1.00.

Agricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of Pike's Peak," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "The World A School," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher, Topeka, Kansas.

Printing!—Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST by the Department furnishes advanced students by the Department furnishes advanced students the requisite drill in newspaper work.

A Kansas Text-Book, for teachers and students. Elements of Agricultural Geology, for the Schools of Kansas, by Prof. Wm. K. Kedzie, M. S., of the Kansas State Agricultural College.

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact."

In two parts: Part First—Elementary Geology Part Second—Origin and Formation of Soils. Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a productions. Centennial award for quality of work. Kansas work, by Kansas mechanics, at this Kansas establishment. Pronounced "faultless."—Felter's series of School Records, made to comply with Kansas laws. by a Kansas author and Kansas publisher. The best School Officers' Records in the market. Felter's Elements of Books. sas publisher. The best School Omcers' Records in the market.—Felter's Elements of Book-keeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.—The Annals of Kansas, a marvellous history of Kansas, written and printed in Kansas.—The Educational Calendar, a feartiful mentals, sublication for the Officers a marvellous history of Kansas, written and printed in Kansas.— The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for twenty-five cents per annum.— The best Railroad, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment for Kansas equal to the best in America. ment for Kansas equal to the best in America.

Address, GEO. W. MARTIN, Topeka, Kas.

Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps. Hygiene, by Mrs. Cripps.

The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixtyfour pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case,

Kansas City, Mo.
This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific subjects.

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

to their reliability and their adaptiveness to the popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the Review and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

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# KANSAS STATE AGRICULTURAL COLLEGE.

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MISS CARRIE STEELE, Teacher Instrumental Music

THIS College furnishes a thorough and direct education to those who intend to be Farmers, Mechanics, or to follow other industrial pursuits. Mechanics, or to follow other industrial pursuits. As a foundation for each course of study, and for success in daily life, the first object is to make every student an expert in the use of the English Language as an art; and, also, an expert in Practical Mathematics, including skill in the use of numbers; in the use of lines, or Industrial Drawing; and in Book-keeping.

FARMER'S COURSE.

Building on this foundation, the special object of the Farmer's Course is to give the student a practical knowledge of the structure, growth, and value of Plants; of light, heat, and moisture; and of Inorganic, Organic, Analytical and Agricultural Chemistry, as these are related to Plant and Animal Growth; of Economic Zoology; and particularly of Practical Agriculture and Horticulture, including such instruction and drill in the Field, in the handling of Stock, in the Nursery, and in the Wood and Iron shops, as will enable the graduate to perform readily each of the varied operations of actual Farm Life. The Farmer's Course is the leading one of the Institution.

MECHANIC'S COURSE.

To Mechanics, in addition to the studies of the Farmer's Course, applied Mathematics and Industrial Drawing are more extensively taught. Besides this literary education, the student is taught daily in the particular work-shop of his trade. Special advantages are thus offered to those who wish an education as a Corporator Cabinet maker wish an education as a Carpenter, Cabinet-maker, Wagon-maker, Blacksmith, Turner, Carver, or Engraver. No charge made for the use of tools or materials for class practice.

WOMAN'S COURSE.

The course of study for woman is more practical and, therefore, more sensible than that found in any other institution in the United States. The studies are shaped with reference to the liberal and direct education of woman as a woman instead of as a man, and as an industrialist instead of a butterfly. Among the special features of the course are Physiology and Special Hygiene, Housecourse are Physiology and Special Hygiene, Household Economy, Farm Economy, Gardening, Household Chemistry, etc. The work-shops include those of Millinery and Dress-making, Printing, Telegraphy, Scroll-sawing, Carving, Engraving and Instrumental Music.

TUITION ABSOLUTELY FREE! TO

No contingent fees, except for use of pianes and organs in the Musical Department; and a charge of \$1.00 per month for material and instruments used by male students in Printing and Telegraph Departments. Boarding ranges from \$2.75 to \$4.00 per week.

CALENDAR: — Fall Term began August 23d, and closed December 20th, 1877. The Spring Term began January 3d, and will close May 22d, 1878.

For further information, apply to JNO. A. ANDERSON, President.

Published every Saturday by the PRINTING DEPARTMENT

### KANSAS STATE AGRICULTURAL COLLEGE

TERMS OF SUBSCRIPTION, 75 cents per year, postage prepaid. Ten cents per month, postage prepaid. Payment absolutely in advance! Paper stopped at expiration of subscription.

Address A. A. STEWART, Manhattan, Kas.

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Teachers	1.13=	1.13
Professional education:		
Ministers	0.43	
Lawyers		
Doctors	0.73=	1.71
Industrial education:	WO 40	
In agriculture	59.13	
In manufacturing and mechanical	14.63	
In personal service	13.89	
In trade and transportation	9.51=	97.16
	10	00.00

AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in experition by the State was its endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact and also with the familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education. ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

LOCATION. It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY. The course of study is shaped with direct refer-The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dress-specific printing telegraphy, carving engraving making, printing, telegraphy, carving, engraving and music.

### Department of Practical Agriculture.

Report of Prof. E. M. Shelton for 1877-8.

To the Board of Regents of the State Agricultural College:

GENTLEMEN: - I have the honor to offer for your consideration the following outline of operations in the Farm Department for the seventeen months ending April 30th of current year. The course of instruction in this department has not been materially changed since my last report. These studies embrace the following subjects: Elementary Agriculture, given in lectures and including stock breeding, history and characteristics of breeds, farm implements, and simple tillage; Advanced Agriculture, also given in lectures, embracing rotation of crops, manures, and cognate subjects; Physiology and Hygiene; and, to a class of young ladies, a course of lectures on Dairy Practice. In addition to these, the regular studies of the department, I have taught during the spring of 1877 a class in Physical Geography, using Guyot's text-book; and during a half of the last term a class in U. S. History.

In the classes in Practical Agriculture and Physiology, substantially the same ground has been gone over as that mentioned in previous reports. In the elementary class in agriculture, a large share of the work of the term has been devoted to stock breeding and related topics, in the belief that stock raising is a subject of special interest to Kansas farmers. The new barn and comfortable yards adjacent have rendered valuable service in our studies of this subject, as by these I have been able to give the class a number of daily studies of the different breeds making up the College herd without danger of interruption by the ele-

The advanced class in agriculture has devoted the time chiefly to the subjects of farm experiments, manures, rotations, and farm buildings, having special reference to the wants of Kansas farmers.

The physical geography class passed through in a very thorough manner Guyot's large book.

In U.S. history, the end of the term found the class just through the war of the rebellion, having considered the subject from the discovery of America, taking Anderson's Grammar School History as the text-book.

The whole number of students in the different classes in my department during the two years past, is shown by the following

Studies.	1876-7.	1877-8.	Total.
Physiology, 2d year	98	40	138
Physiology, 2d year Practical Agriculture, 2d yr.	41	12	53
" 4th yr.	4	4	8
Physical Geography, 3d yr	4		4
Household Economy, "	10	1	11
U. S. History, 1st year		27	27

It gives me pleasure to report the uniform attention and zeal shown by the students of this department. This is all the more a pleasure to me, as most of these studies are distinctively agricultural and much out of ripen in four to six weeks less time than is sales of pigs alone \$320 were received.

the line of the ordinary college course. THE FARM.

In its general features the season of 1877 bore a striking resemblance to that of 1876. Like that season, the past has been peculiarly favorable to all spring grains, while from excessive moisture winter wheat has suffered greatly from the rust. Unfortunately, I have no experience with winter wheat to report for 1877. Our crop of twenty acres, after having been seeded in some parts twice, and as often destroyed by grasshoppers, was finally given up and the ground in part sown to winter rye. For a full statement of the crops grown, acreage, yield per acre, and cost of each bushel, you are respectfully referred to the subjoined

Crops	No. of	Yield per	l per acre. Cost.		Total	
grown.	Acres.	Bushels.	Tons.	Bush.	Ton.	Am't.
Corn Sp'g Whe't	271/2	48 15.8		.16 .46		1320 71.1
Rye Oats	8 10	17 40		.36		136 400
Barley Millet	11½ 19	13	1.64	.47	2.51	149.5 31.16

In the columns under "cost," account is taken only of the cost of seed and labor, taxes and the use of the land not having been considered.

The question of the actual cost of producing a bushel of corn in ordinary field culture, is often discussed by the agricultural press. Our experience during the last three years may throw some light on this subject. In 1875 our corn yielded 27½ bushels per acre, and cost 20 cents per bushel; in 1876 the yield was 55 5-8 bushels, costing in production 12½ cents per bushel; the past season it will be seen with a yield of 48 bushels, the cost of each bushel being 16 cents. The average cost of producing each bushel of corn produced upon the College farm during the past three years has been 16.1

I am well satisfied that during such favornot excessively foul, corn may be produced in this section at a cost not exceeding 13 cents. Further, by attention to a few partiulars now generally neglected, it is within the power of our farmers to considerably reduce even this low cost of production. First, more care should be given to the selection of seed. Corn may be bred and improved just as well as Short-horns, and much more rapidly. In the selection of seed, not only should nothing but the best ears be saved; but those which have the same general characteristics — as color, size of grain,-should have the preference, so that they will breed "true." Then, if a portion of the field or a separate plat be given exceptionally good treatment, and all feeble and unproductive stalks have their "tassels" removed as soon as they appear, a surprising improvement will soon be noticed. Second, our Kansas farmers cannot afford to neglect the smaller kinds of corn grown in the Eastern States. A considerable portion of our corn ought always to be

required by the larger "Dent" sorts. I am convinced that if in 1874 our corn had been of this sort, a fair crop would have been grown. Moreover, under the same treatment, the small corn will yield nearly or quite as well as the large "Dent." Last season, upon the College farm, 51 acres of the small King Phillip variety, planted June 9th, yielded 44 bushels per acre; while 22 acres of Yellow Dent, planted May 9th, gave a yield of only 49 bushels. The cost of each bushel of King Phillip and the "Dent" were about the same.

The light yields of barley and millet shown in the above table are explained by the facts that the seed, procured from outside parties, proved to be lacking in vitality, a considerable portion failing to germi-

The total cropping upon the farm the present season is in round numbers: Winter wheat, 20 acres; corn, 25; oats, 21; millet, 13; tame grass pasture, 18 acres. All these crops are now without exception in very promising condition. I expect to make a report upon these, supplementary to this, at the close of the year.

STOCK.

Within the seventeen months covered by this report, very valuable additions have been made in the natural way to our herd of neat cattle. All told, the herd has been increased by eight head of pure-bred animals, divided among the different breeds as follows: Short-horns, 3 heifers and 2 bulls; Jerseys, 1 heifer and 1 bull; and Galloways, 1 heifer. The herd at this writing numbers 20 head of pure-bred animals, of which the Short-horns number 11 females and 2 bulls; Jerseys, 2 females and 2 bulls; Galloways, 2 females and 1 bull. It is interesting to remark, as showing the rapidity with which a sound herd multiplies, that 16 of these animals have sprung from the four able seasons as 1876 and '77, upon good land cows owned by the College in 1874; and, in addition, we have sold of their offspring 6 head of pure-bred animals.

> Our herd of swine has not changed materially since my last report. It now numbers 10 head of breeding sows and 3 boars, of which 3 sows and 1 boar are of the Essex breed and the remainder Berkshires. There are in addition to these three small litters of young pigs. Three choicely bred Berkshires, from the well-known herd of Albert Crane, Durham Park, Kas., are all the additions made to our herd of swine by purchase since my last report.

Considering the size of the herd, my sales of stock have been quite liberal; and the demand for pigs especially has been greatly in excess of the supply. I have been able to fill less than half of the orders received for pigs, and for several months past we have not had a single animal for sale. The number of pigs sold for breeding purposes in the time covered by this report is 19,-13 Berkshires and 6 Essex. The average price received for the Berkshires has been of one of these sorts, for the reason that they \$20.15; for the Essex, \$9.66. From the From a litter of 9 Berkshires, I received \$134, and retained two of the pigs in our own herd. I need hardly say that these are profitable prices so far as the College is concerned; and, judging from the numerous testimonials I have received, the stock has been appreciated.

In the fall of 1877, twenty-four experimental plats were laid off in Field No. 4 and sowed to winter wheat, for the purpose chiefly of testing upon this crop the value of farm-yard manure, ashes, ashes and gyptestimonials I have received, the stock has been appreciated.

Our sales of cattle have not been so numerous as of swine, although quite as important. I have sold for breeding purposes, 2 Short-horns, 2 Devons, and 1 Jersey heifer. The average price of the Shorthorns was \$200; of the Devons, \$56.50; and \$120 was had for the Jersey heifer. From the sale of cattle for breeding purposes, the farm has received \$633.

BUILDINGS.

Since last November the new barn has been in constant use, and I am prepared to speak positively of its merits. Accustomed as our herd was to an old shed which leaked like a seive, and which after every rain was more than ankle deep in the most tenacious mud, we can appreciate the blessings of warm, dry stables, convenient granaries and bays, and dry, roomy yards, such as the farm now has. The plans of this barn have before received your approval, and I need not repeat them here. A cut of the barn and complete description appeared in the INDUSTRIALIST of Feb. 23d, and in Moore's Rural New-Yorker of April 13th. The plans have been highly commended by some of our best farmers; and, speaking after six months' use, I should hardly know how to suggest a single important change for the

Around the barn a large amount of grading has been done; and a roomy barn-yard, surrounded on three sides by a picket fence and on the north by a tight board fence, has been completed. Further, the corn-cribs have been removed to near the new barn, and the platform scales changed to a position convenient to both entrances of the barn. We have also dug two good wells,—one in Field No. 1, and the other in the barn-yard. In the latter an excellent spring was found at the depth of five feet.

MACHINERY.

Early in the spring of 1877, the Hoosier Drill Company, Milton, Indiana, presented the farm, for trial, one of their corn drills. This machine has had a thorough trial two seasons, and I am prepared to commend it heartily to those of our farmers who have fallen into the modern fashion of planting in drills. This machine is durable and well constructed, and it distributes the corn so evenly as to leave nothing to be desired in this respect. Considering that our own experiments, and all others with which I am acquainted, show an increased yield, by the method of drilling, of from ten to twenty-five per cent, our farmers whose land is in proper condition will do well to give this machine a trial.

More recently I have received from Deere, Mansur & Co., Kansas City, one of Baird's "Limber Jack Harrows," but have been unable as yet to give it a satisfactory trial. During the year I have tested with the dynamometer, for manufacturers and and others, a considerable number of plows, reapers and other farm machinery, and hold myself in readiness to continue to perform such work.

### EXPERIMENTS.

In the spring of 1877, a portion of Field No. 3 was laid off in experimental plats and planted with corn, for the purpose of testing the value of gypsum and different methods of planting. The whole experiment came to a sudden end during a violent storm late in May, which, besides tunneling huge gullies through the peice, in several cases wellnigh destroyed whole plats.

In the fall of 1877, twenty-four experimental plats were laid off in Field No. 4 and sowed to winter wheat, for the purpose chiefly of testing upon this crop the value of farm-yard manure, ashes, ashes and gypsum, and gypsum alone. Four of these plats were devoted to as many kinds of wheat and rye received from the Department at Washington. In this experiment, for the purpose of comparison, every alternate plat receives no special treatment; the remaining plats are treated with fertilizers in a regular order. The experiment is a very interesting, and at this time a very promising one. I hope to make a full report in due time.

The experiment with potatoes, begun two years ago, has been continued during the past season, eighty odd varieties having been used. These, it will be remembered, are mostly new eastern sorts sent me by Prof. W. J. Beal, of the Michigan Agricultural College. The varieties giving the largest yield, naming them in order of size, were Great Britain, Duke of Cumberland, Chenery, Ketchum's Seedling, Breakfast, Missouri White, Red Jacket, Early Golden, Early Victor and Early York.

Before concluding the subject of experiments, I wish to offer a word about the tame grasses. I class these under the head of experiments in consonance with a popular notion. I myself consider the profitable growth of tame grasses and clover in Kansas no more of an experiment than the growing of wheat and corn. During five years, every one of which we have seeded more or less to the tame perennial grasses, only one failure has been recorded. We have now twenty acres of tame grass sod land that will compare favorably with the best eastern pastures. In addition to this, we have six acres of recently seeded land and several acres of lawns and detached pieces. The prevailing sorts used are the Kentucky blue-grass, orchard-grass and timothy, in which two and sometimes three sorts are mixed in the same seeding. We have in addition several acres of alfalfa. To show something of the value of these grasses, I need only point to the fact that they furnished good cattle food the present season by March 1st.

Our experience on the College farm, after having tried more than sixty sorts of grasses and clovers, points to a mixture of orchard-grass and Kentucky blue-grass, sown at the rate of one bushel of orchardgrass and one-half bushel of blue-grass seed per acre, as furnishing the best and most reliable pasturage. The orchard-grass is surpassed by hardly any other, in the amount of feed which it furnishes, in nutritive value, or in ability to withstand drouth. Its unfortunate habit of bunching is counteracted by the blue-grass which occupies the interspaces of the orchard-grass. For mowing I should recommend alfalfa, timothy, orchard-grass, and perhaps perennial rye-grass (now in trial), sown separately and very thickly. Nine-tenths of the failures made with the tame grasses in Kansas, so far as I have observed, are referable to one of three causes, -inferior or worthless seed, too light seeding, or ill prepared land. Very respectfully,

> EDWARD M. SHELTON, Prof. Prac. Agriculture, Sup't Farm.

WITHIN ten years no less than 12,000,000 acres of forests have been cut down or burned over in the United States.

THE largest school in the world is the Mohammedan University, Cairo, Egypt. It has 314 professors and about 10,000 students.

# THE INDUSTRIALIST.

SATURDAY, JUNE 8, 1878.

JNO. A. ANDERSON, Managing Editor.

JUDGE ADAMS, Secretary State Historical

JUDGE ADAMS, Secretary State Historical Society, Topeka, desires the names of old settlers and others who would be likely to prepare historical papers of early Kansas days. There are many persons in every neighborhood who were participants in events that are now historic, and who ought to tell what they know.

#### Horrible!

A more brutal and harrowing outrage than that perpetrated by the "body snatchers" in the case of Hon. J. Scott Harrison. rarely finds it way to the public. Mr. Harrison was the son of General Harrison, formerly President of the United States, and as man and boy spent a long and honored life near North Bend. No one had a kinder heart, a more helpful hand, or a truer respect; and as a member of Congress his life was as pure and serviceable as it was in his family. At a ripe old age he dies and is placed by loving hands in the narrow grave. That night some soulless fiend, for a paltry ten dollars, robs the grave, carries the body to a medical college in Cincinnati, where the veins are injected, a cloth put over the face, and the corpse hung by the neck in a well, where it was accidentally discovered by his son while searching with a friend for another stolen body.

The plea for such practices is, that medical students, for the benefit of science, must have anatomical practice; therefore, that medical colleges must have "subjects," and therefore that body snatchers must be winked at and borne with. There is some force in the first plea, but because deputy saw bones should practice on the dead and thus give a better chance of life to patients, does it logically follow that body snatchers are to rob graves and that medical colleges are to become parties to the robbery by paying the price of a most loathesome crime? If so, then there can be no question as to the fate of such colleges; because if the law does not prevent their criminality, an American mob will save the law all trouble by razing the buildings and going further if necessary. But if this conclusion is not a necessary result from the "necessities of science," then it behooves the faculties of medical colleges to secure the passage and enforcement of such a law in regard to "burking" as will prevent outrages.

Community has certain rights in this matter which science must be made to respect. When a husband places the body of his wife in the grave, he has a right before man and God that the remains of one dearer to him than life shall not be exposed to the lecherous eye or heartless jest of any being whatever, whether a surgeon or student. It makes one's blood boil even to think of it. When General Ben Harrison laid the gray head of his father by the side of his grandfather, he had an inexorable right to demand that it should rest there forever, and not be swung from a windlass in the "chute" of a medical college for demonstrators to carve into shreds. Love has its laws as well as science. Sons have rights in the remains of their fathers which no man in God's world, or under any conceivable plea, may violate with impunity. And this question had better be finally settled now than at any future time.

We feel the more keenly this particular crime because in college days Ben Harrison and the writer were room-mates, and some of the pleasantest days of vacation life were

spent under the roof of modest, affectionate grand Scott Harrison. And the only compensation in the matter is the fact that such a man as General Ben Harrison, the leader of the Indiana bar, with a courage that knows no fear and heeds no difficulties, will drive this question to a bitter and satisfactory settlement. But apart from any feeling or any specific care, the principle is exactly the same; and the humblest mother in the land has an absolute security that the body of her daughter or her own body shall not be sold to doctors. The bare thought of anything else suggests shot-guns.

school District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan.

Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

abits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

athematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

sas Furmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the INDUSTRIALIST for \$2.75; or the Farmer and INDUSTRIALIST for \$2.25; or the American Young Folks and the INDUSTRIALIST for \$1.00.

A gricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of Pike's Peak," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "The World a School," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher. Topeka, Kansas.

work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST by the Department furnishes advanced students the requisite drill in newspaper work.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a Centennial award for quality of work. Kansas work, by Kansas mechanics, at this Kansas establishment. Pronounced "faultless."—Felter's series of School Records, made to comply with Kansas laws. by a Kansas author and Kansas publisher. The best School Officers' Records in the market.—Felter's Elements of Bookkeeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.—The Annals of Kansas, a marvellous history of Kansas, written and printed in Kansas.—The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for twenty-five cents per annum.—The best Railroad, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment for Kansas equal to the best in America.

Address. GEO. W. MARTIN, Topeka, Kas.

SATURDAY, JUNE 8, 1878.

The Manhattan boys are organizing a militia company.

Strawberries are nearly gone, cherries are quite plenty, and raspberries are just ripening.

The Topeka Calendar for June is at hand, full of educational news and peculiarly attractive.

Capt. Todd is at Emporia this week, attending the Episcopal Convention of the Diocese of Kan-

We shall begin the publication of the orations of the Senior class next week. Mr. Amos E. Wilson's will appear first.

Raspberries are selling for twenty-five cents a box in the Manhattan market. Thank you, we don't care for any.

We have a Short-horn gentleman upon the farm who is not eleven months old and weighs 880 pounds. "Pretty good-sized calf."

W. C. Stewart went to St. Louis the first of this week. We understand he is to exhibit the phonograph for the Bell Telephone Company.

Prof. Gale and wife went to Ottawa on Thursday to attend the Baptist State Convention, in session in that city. They will return next Tuesday.

Next week we shall publish some of the hearty and complimentary notices which the press has given of Judge Horton's views on the jury system.

The Fredonia Citizen credits our article headed "Chief-Justice Horton on the Jury System," to the Manhattan Nationalist. INDUSTRIALIST, if you please

Prof. Shelton's report runs over onto the editorial page and compels us to leave out some other matter. But the report is good reading, interesting and profitable.

John Winne's broken arm has so far recovered as to admit of his return to his work at Newton. He left on Friday evening, and we trust will be more fortunate than before.

George H. Failyer will teach penmanship in the Chautauqua County Normal Institute, at Sedan. We wonder if George intends to prove the value of his theory by his practice.

During the past week the College farm has received a young imported Berkshire boar, from the celebrated herd of the late Wm. Hewer, Sevenhampton, Wiltshire, England.

A splendid rain on Thursday gave corn a new start. We never saw vegetation grow as it does this season. The trees around the College buildings are doing remarkably well.

John Mann gave us a good-bye shake yesterday, and started for his home near Sterling, Rice county. He expects to be gone only a few weeks, and hopes to be on hand at the opening of the next term.

A good deal of tame grass, which "won't grow in Kansas, you know," has been cut upon the College farm during the week, as the weather permitted. The yield will average a good 11/2 tons of prime hay

A lady who came through Illinois and Missouri this week states that the crops are very late, that corn is just coming up. In Kansas farmers are in the midst of a grand wheat harvest, and corn is waist high.

We received a pleasant call on Friday afternoon from Rev. H. I. Coe, of St. Louis, who is here spending a few days with his family. Mr. Coe is an earnest advocate of industrial education, and

Joe Williamson will attend the State Teachers' Association at Atchison, excurt with it to the mountains, and then teach in the Shawnee County Normal Institute when he returns. These facts we condense from a late letter.

President Anderson went up to Clay county this week to look after his wheat harvest. Next week he and Mrs. A. will attend the meeting of the State Editorial Association, and then accompany it on the excursion to Put-in Bay.

Mr. Walters was here last Friday. He had been out to Milford, up to Marysville, and around generally. Saturday he must have gone away again, as he has not been seen here since. We miss him and C. O. Smith on publication day.

The Manhattan school board has elected the following corps of teachers for the coming year: Principal, D. E. Lantz, of Mifflin, Pa.; first assistant, E. F. Clark; other assistants, Misses A. T. Arnold, Lizzie Pechner, De Etta Warren, and Alice Ritchie. These teachers will occupy the new school building.

John King, one of our old students, spent a day or two at the College this week. He has been out in Phillips county selling maps. In speaking of other old students, he told us that C. F. Travelute had been traveling as an insurance agent for over a year. Mr. King said there had been a greater change in the appearance of the trees around the College than in anything else.

Some of the students are spending vacation in Manhattan and vicinity. Henry Coe is caring for the stock on the College farm; Gus Platt is engaged on the Industrialist; S. A. Garr is working on Mr. Smyth's farm, a mile and a half northeast of the city; Mr. Beacham is employed on the Kearns place, three miles west of the College; and Mark Reeve is doing carpenter work on the new

A notice of the marriage of C. A. Streeter to Miss Alice Fullington, of Milford, appears elsewhere. The ceremony was performed last Sabbath morning, in the Congregational Church at Milford, and a dinner such as no one but Mrs. Fullington can prepare was spread at the residence of the bride's parents. In the evening five carriages loaded with friends of the bride and groom, accompanied them to their neat and pleasant home north of Milford. For some time we have been expecting Charlie to take this step. He is a fine young man, and has an "A No. 1" lady. Here's our so, with congratulations for both husband and wife. May the blessings of life be showered abundantly upon them.

#### ENTERPRISE ITEMS.

Some extensive improvements in the line o new pavements are going on in Osage street.

Geo. Wake writes that he has "squatted" on a quarter in the Fort Harker Reserve, as there is a fair prospect of its being opened up to settlement. He has a shanty erected, 10x12, and thinks it possible to exist out there. The lumber business is

Thos. Jenkins informs us that on Mr. Purcell's farm a great deal of rye stands over seven feet high, and one stalk he measured was eight feet two inches long. Think of that, ye Eastern farmers, and then weep because you can't sell your little stony farms and come to Kansas.

State Senator Dow has been appointed Revenue Collector for this district. This position is a responsible one, and will be filled in a trustworthy manner by Senator Dow. His acceptance of this position creates a vacancy in this senatorial district which must be filled this fall by election.

### NATIONALIST ITEMS.

The harvesters began work June 3d.

E. B. Purcell was taken sick on Tuesday, but is better to-day.

Ten or a dozen cars of stock were shipped east from here last Sunday.

There are quite a number of persons in town to spend the summer on account of their health. Sam Kimble, Jr., and W. D. Hilton have united forces, and the card of Kimble & Hilton appears

Mr. Norman Eastman, from Humboldt, Kas., arrived Tuesday night with a car load of fine stock, to put on the farm which he has lately purchased

near Riley Centre. The fall grain hereabouts is now generally so far advanced that a good crop is absolutely sure, and the only danger is that the weather may not be fair during harvest.

The time of holding our fair has been changed to September 3d, 4th, 5th and 6th,—about a month earlier than last year. The premium list will be ready for distribution next week or the

Miss Beckwith, who has taught the College district school with such marked success for the past two terms, celebrated the close of school by a pic-nic on the Wild Cat, and from the scholars' account a jolly time was had.

Last year the township assessor found the population of Manhattan to be 1,392. This year it was 1,597. Since it was taken, several families have located in town, so that our population now exceeds 1,600. This shows an increase of over fourteen per cent, and is certainly an excellent showing. Somebody had better build some more houses.

. The Manhattan Industrialist publishes the very able and eloquent oration of Col. J. R. Hallowell, delivered at the commencement exercises of the State Agricultural College. Col. Hallowell is one of the most brilliant speakers in the State, and this oration will only confirm the popular impression of his ability and eloquence.—Atchison

The Industrialist offers a subscription for two months to said paper, to the scholar in any school in the State writing the best local, not to exceed two sticks in length; the editor to suggest the subject and decide, without knowing the name of the author, which was the best. On Tuesday last we gave the subject "The Neosho River" to Prof. Hay, and he gave it to his pupils. After thirty minutes six of his pupils gave him their manuscripts, and after careful perusal we award the prise to No. 9, which we publish below:

"THE FLOOD.- Last Friday night it commenced raining and rained almost without ceasing till Saturday noon. The Neosho river rose rapidly and on Monday noon, when at its highest, was about five miles wide. Many farms are covered with water and their crops destroyed, and many people are compelled to abandon their homes and move to higher ground. The pressure of the water against the east butment of our bridge caused it to crack open in the center and one of the braces to slip, making the bridge at the present time very unsafe. The water is going down very slowly, having fallen only about an inch since Monday noon."—Chetopa Advance.

#### DIRECTIONS TO APPLICANTS.

TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as possible.

Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each nation of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used. used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in

the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed number of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

EXPENSES.

There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments. month for use of instruments.

month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a few of \$12 per term, or seventy-five cents near years. fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and

the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term. No student need expend over \$5 per week; and

many of our best pupils are living at \$1.25 per week. Students 'desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.-Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held par-

while the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. — When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he becomes an employer instead of a teacher, and he an employer instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise familiar with farm operations, and who can raise

\$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Department, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Education. Price, 75 cents a year. Address A. A. Stewart, Manhattan.

Spring Term 1878.—Began Thursday, Jan. 3d, and will close Wednesday, May 22d.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after a heavel for a preliment. after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

#### MARRIED.

STREETER-FULLINGTON-At the Congregational Church in Milford, Sabbath morning, June 2d, 1878, by Rey. E. Skinner, Mr. CHARLES A. STREETER and MISS ALICE E. FULLINGTON, both of Milford.

#### RAILROAD TIME-TABLE.

KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES.

Going East..... 12: 20 P. M. Going West...... 4:10 P. M. FREIGHT ARRIVES.

Passengers with the above-named trains. GEO. C. WILDER, Agent.

H. S. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Yocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reckoned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

**Dress-Making and Millinery.**—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher. all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the high-est breeding. Address E, M. Shelton, Manhattan,

Educational Calendar.—A wide-awake, spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W. Martin, Topeka.

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room and if desired at the printer's cases. class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than NOBLE L. PRENTIS, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

## KANSAS STATE AGRICULTURAL COLLEGE.

Board of Regents.

S. M. WOOD, President, Elmdale. W. L. CHALLISS, Vice-President, Atchison. JNO. A. ANDERSON, Secretary, Manhattan. B. L. KINGSBURY, Burlington. J. R. HALLOWELL, Columbus. T. C. HENRY, Abilene. L. J. BEST, Beloit.

E. B. PURCELL, Treas. L. R. ELLIOTT, Land Agent. E. GALE, Loan Commissioner. Manhattan, Kansas.

FACULTY.

J. A. ANDERSON, President, Prof. Political Economy. M. L. WARD, Prof. Mathematics and English. WM. K. KEDZIE, Prof. Chemistry and Physics. E. M. SHELTON, Prof. Prac. Agricul., Sup't Farm. E. GALE, Prof. Botany and Horticulture.
J. E. PLATT, Prof. Elem'y English, Mathematics.
JNO. D. WALTERS, Teacher Industrial Drawing. HON. D. J. BREWER, Lecturer on Practical Law. A. TODD, Sup't Mechanical Department.
A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agriculness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farmble education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

### FARMER'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology. 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Practical Geometry. 4. Horticul., Landscape Gardening. 5. Organic, Analytical Chemistry. 6. Practical Surveying.	1. Physiology. 2. Rhetoric. 3. Algebra. 4. Practical Agricul. (elementary). 5. Physics. 6. Industrial Drawing.	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arithmetic, Book-keeping. 6. U.S. History, Industrial Drawing

### WOMAN'S EDUCATION.

Nearly one-half of our students are females and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

### WOMAN'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR,
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Farm Economy, Special Hygiene. 2. Geology, Mineralogy. 3. Polit'l Economy, Practical Law 4. Zoology. 5. Phys'c'l Geography, Meteorology 5. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Industrial Drawing. 4. Horticul., Landscape Gardening. 5. Organic, Household Chemistry. 6. Household Economy.	1. Physiology. 2. Rhetoric. 3. Algebra. 4. English Literature. 5. Physics. 6. Industrial Drawing.	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arith., Book-keeping. 6. U.S. History, Industrial Drawing.

# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS. Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them as selected by the pupil or parent. one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

FOR FEMALE STUDENTS. Dress-making. Printing. Telegraphy. Scroll-sawing. Carving. Engraving Photography. Instrumental Music.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

### DEPARTMENTS OF INSTRUCTION.

### DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE.

Second Year: - General principles of breeding second rear:—General principles of breeding, history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments. of draught; innuence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage; how to lay out; a system of drains; house drain-

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; genera-advantages of a rotation; the best rotation with reference to disposition of labor, production of reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY.

Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

# DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and sys tematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practi-cal drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of prun-ing; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are ac-companied by a practical drill in in the work of laying out and plotting grounds topographically.

#### CHEMICAL DEPARTMENT. PHYSICS

This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to their history, properties, manufacture, and especially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboratory practice. CHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observations is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

#### MINERALOGY.

This includes the study of the laws of crystallography, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composition of food; bread; tea, chocolate and coffee butter and milk; ripening and preservation of fruits, etc.

SPECIAL COURSES Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE.

Words are simply tools used to express ideas; Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called language just as an engineer handles a locometive. guage, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the stu-

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accu-

racy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications,
variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of com-positions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and penman-

ship.
Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter
the printing class, the printing-office being the
work-shop of language.

STRUCTURE OF ENGLISH. ELEMENTS OF WORDS .- The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the

topics included are:
Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech. Stems: Their derivation; their of

erties; their relation to other parts of words. Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems.

Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examina-

tion of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes the rules and marriage here. changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given operations are performed, but because they can neither add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC. The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of or a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops, construction of houses, sales of produce, and investment of capital involve all the

produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING

Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

Algebra is included in the course as a prepara-

tion for the study of Surveying.

DRAWING.

The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Depart-

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student skillful in the application of lines to the field by skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical prin-ciples and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters are are valuable to instruction in hygienic matters as are valuable to

FARM ECONOMY considers those affairs of the FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

GARDENING is included in Practical Horticulture. See heading, "Landscape Gardening."

HOUSEHOLD CHEMISTRY. See heading, "Household Chemistry."

hold Chemistry."

HOUSEHOLD ECONOMY

Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and en laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that affords a girl has learned to work the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlastingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry—and no more expensive.

# INDUSTRIALIST

Published every Saturday by the PRINTING DEPARTMENT OF THE

### KANSAS STATE AGRICULTURAL COLLEGE.

TERMS OF SUBSCRIPTION, 75 cents per year, postage prepaid. Ten cents per month, postage pre-paid. Payment absolutely in advance! Paper opped at expiration of subscription.
ddress A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

Teachers	1.13==	1.18
Professional education:		
Ministers	0.43	
Lawyers	0.55	
Doctors	0.73==	1.71
Industrial education:		
In agriculture	59.13	
In manufacturing and mechanical	14.63	
In personal service	13.89	
In trade and transportation	9.51=9	37.16
	-	

AGRICULTURAL COLLEGE.

Recognizing the need for an education which Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultthat agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education. ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested to check the sale of lands are invested. amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,in school 000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with avery quarter.

munication with every quarter. COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an COURSE OF STUDY. ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a instead of as a man, and as a worker instead of as butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood making, printing, telegraphy, carving, engraving and music. and iron work, and for giving girls drill in dress-

Department of Chemistry and Physics. Report of Prof. W. K. Kedzie for 1877-8.

To the Board of Regents of the State Agricultural College:

GENTLEMEN: - I have the honor to submit to you the following report of work and instruction in the Department of Chemistry and Physics for the period of one year and a half, since the presentation of my last report in November, 1876. During this period the class-work of my Laboratory has

been as follows: 1. A course of lectures in Inorganic Chemistry to a class of sixteen. On account of the difficulty of obtaining a suitable textbook for students in this course, I have made use of an Edison's Electric Press and Pen, with which a full abstract of each lecture is daily issued to each student, with a a great saving of time and labor. In addition to the numerous lecture-room experiments, this class has met regularly in the Elementary Laboratory for experiment and

2. Two courses in Organic Chemistry to classes of nineteen and twelve respectively also fully accompanied by experiment and laboratory practice.

3. Two classes in Chemical Analysis, of nineteen and eight,- this study not being now included in the ladies' course. The students of these classes have completed excellent terms' work in analysis of minerals, ores, mineral waters, commercial compounds, druggist's materials, ashes of plants, etc.; each student occupying his own table, with his own set of apparatus, and working independently.

4. A class of four in Agricultural Chemistry, employing Prof. Johnson's "How Crops Feed" as a text-book. This class has also spent much time in the Quantitative Laboratory in the analysis of farm soils, both from Kansas and other States; and has been conducting some interesting experiments in water culture in the growth of corn, barley, oats, etc., in prepared solutions, for the purpose of observing the exact effect of different fertilizers in the growth of crops.

5. A class of four ladies in Household Chemistry, to whom has been given a course of lectures on the composition of food and chemistry of cooking.

6. Two classes in Elementary Physics, of sixty-nine and forty-nine each. These classes have completed in the Physical Laboratory a full experimental course in this study, embracing the laws of mechanics, light, sound, heat, magnetism and electricity. By the arrangement of this laboratory the apparatus is constantly before the student, and the experiments are largely performed by the hands of the students them-

7. A course in Mineralogy, with a class of seven. This course has also been conducted by lectures, with abstracts and crystal drawings from the electric press. Blowpipe analysis of minerals has as usual formed a prominent part of this study, each student determining and naming a large ing to teachers and county normal institutes els.

number of specimens from our mineralogical cabinet.

8. A class of seven in Agricultural Geology, considering the formation of the earth's crust, of the rock layers; the history and development of the geological ages; the geology of Kansas in full; and especially

9. A class of five in Meteorology, who have completed a course of study of the laws of storms; of the manufacture and use of meteorological instruments; of the conduction of observations, constructing weather maps, storm and rain charts, and study of atmospheric electricity. The weather records which have been conducted for fifteen years past are still in progress, and reports are forwarded monthly to the chief signal officer of the army, and furnished to the press for publication.

In addition to the regular course of study in the department, my Laboratory has been constantly open to special students who wish to devote themselves to some particular branch of study. Of these, during the period covered by my report, three have been Pharmaceutical Chemistry — one of whom has manufactured during the present term over fifty fine preparations, besides a large number of compounds for use in the Labo-

The demands upon the department for special analytical work have been unusually numerous. The usual variety of silver lead, zinc and iron ores, ochres, tripolis, lignites and coal, have been received from various parties and analyses returned. Minerals suspected to contain silver, from Woodson county, forwarded me through Governor Anthony for assay, together with a large assortment of specimens from many other parties in that locality, have been received for analysis on the supposition that they the specimens sent have furnished a trace of any of these metals.

weeks were spent in an investigation for the U. S. Entomological Commission, who desired a full quantitative analysis of the blood and expressed liquids of the Rocky Mountain Locust, for the purpose of ascertaining whether it could furnish any product of practical and commercial value. The results of this examination have already been published in the Industrialist, and will appear in the official report of the Commission.

At the request of a large number of farmers, I have also undertaken an examination of the fungus corn.smut, to determine its supposed poisonous qualities and its connection, if any exists, with the extensive losses of stock through the State in the past two years. A preliminary analysis has already been made, but the full investigation will be completed during the coming vacation.

During the past year I have been furnish-

through the State, a small cabinet of minerals and soils, to be used in connection with my little text-book on Agricultural Geology. This cabinet contains over sixty of the most interesting specimens, and is packed in a neat case manufactured by the Mechanical Department. The minerals are obtained considering the nature, origin and formation from the collector, Dr. Foote, of Philadelphia. The soils are of my own collection from Kansas and adjoining States. A large number of these cabinets have been furnished at exact cost of material, \$8.00.

> I have also been preparing for publication another text-book, "A Student's Hand-Book of Elementary Chemistry."

> By invitation I have during the past year lectured in the cities of Topeka, Lawrence, Leavenworth, Kansas City, Ottawa and Em-

I have begun and during the present summer vacation shall complete a series of analyses of Kansas grains: First, of all varieties of Kansas corn, to determine their relative food and fattening value; second, of all our varieties of wheat, in which a beginning has already been made by the analysis of five varieties. As there is now received in Blow-pipe Analysis and two in in existence no definite knowledge upon this subject, but on the other hand a very wide difference of opinion among farmers of experience, it is believed that the results of this investigation will be of importance and of practical value.

Very respectfully, WM. K. KEDZIE, Professor of Chemistry and Physics.

### Value of the Fish Ponds.

The fecundity of fish is something won-The German naturalist, Gesner, counted 265,000 eggs in a single female perch. No nation seems to have comprehended the capacity of their waters to produce human food so much as the Chinese, who have cultivated their fish as a regular crop for 2,000 years. Every acre of living water is capable of being far more productive and profitable, and contribute more to contained gold, silver and copper. None of the support of mankind, than an acre of the best land in the world. When once fairly stocked, the acre of water requires no attention whatever, except to prevent thieves During the last summer vacation some from robbing it, and destroying all finny occupants, till it again becomes barren and worthless. In Europe, attention is now called to this matter far more than it ever has before. There is no reason whatever why this should not be the case in this country. In stocking ponds with fish, duck, geese and other aquatic fowls should be kept out of them, and the growth of vegetable matter in the water should be encouraged in every possible way.-Manhattan Nationalist.

> THE American idea is, that the more education you can give to the children at the public expense, the better. But there are positive objections to the system, and it is impossible to construct an argument showing that it is right to tax one man to educate his neighbor's child, any further than is necessary to enable that child to be a good citizen. All beyond the well-being of the State should be cared for at individual expense.—New York Observer.

Kansas is harvesting 1,522,787 acres of wheat. It is estimated that the total yield will be from 20,000,000 to 30,000,000 bush-

SATURDAY, JUNE 15, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY.

IF a boy can already plow well, why keep him at it when his time can be better expended otherwise? If he cannot, why not make him as skillful in plowing as in naming the capes of Greenland? It will not pay him to acquire the skill of the cabinetmaker, because such skill is not needed in building fences; but it will pay him royally to acquire the ability to make a gate, put in a spoke, point a plow, set a horse-shoe, paint a wagon, mend a strap, set up a reaper, replace a box, build a wall, cut a stone post, and lay a drain. The cry of "making him Jack-of-all-trades and master of none" may be quite startling to those who don't think. When applied to a carpenter or printer it may be pertinent; but, because farm work daily calls for the performance of the simpler operations of some one of these trades, "Jack skill" makes just the difference between a handy and a helpless farmer, the difference between success and failure. Hundreds of farmers will testify to their loss of precious hours because of an inability to make repairs which any boy can be taught to make.

As against the opinion that the aim of agricultural colleges should be to make thoroughly educated men, we affirm that their greater aim should be to make men thoroughly educated farmers; and for three

First -A student may receive the highest scholastic education afforded by universities, and yet know nothing of practical farming.

Second-Although we hold that the mental faculties are as well disciplined by the mastery of those sciences which relate most directly to agriculture as by the study of any other branches of learning, and therefore that mental development can be as truly gained in agricultural as in other colleges, yet we affirm that their greatest aim should be to teach the farmer how best to apply the truths of science in the management of his farm, and how most to profit thereby.

Third - The primary aim of literary colleges is, and for centuries has been, to discipline the mind, other purposes being secondary. The doors of these institutions are alike open to the children of the industrial The editor gives up the conundrum and and professional classes. It is neither nec- apologizes." essary, economical nor wise for the State to maintain an agricultural college which shall seek to do precisely the same work for the same purpose. Congress evidently had quite a different purpose in view when, as in the title of the organic act, it designated these colleges as for the benefit of "agriculture and the mechanic arts," instead of "for the benefit of the children of farmers and mechanics."

WE are in receipt of the circular of the South-Eastern Normal School and Practical Institute, Fort Scott, Kas., Prof. I. C. Scott, Principal, the first term of which will open Sept. 2d. Prof. Scott is one of the most energetic and successful educators in the State, and we clip the following sample of common sense from his announcement:

This school is conducted upon the basis of common sense and a thorough practical education, without spending a life-time in securing it.

What is the use of a young lady or gentleman attending school four, five or six years to prepare for a business or profession, when he or she can gain the same amount of knowledge in one-half the time that they should be at the time the congres-

and at one-third the expense, if the teaching is done in a proper manner. An education consists in the development of the mind, not the memorizing of a certain num-ber of text-books. The object of this insti-tution is not to produce parrots, by committing to memory a certain amount of subject matter as found in the books of some anti quated author, but scholars who will think and investigate for themselves. Principles are studied, not isolated facts; ideas, not mere words.

It has been a prevailing opinion that study must necessarily be irksome. From this false conception of an education, stu-dents too often attend school to see how much they can shirk, rather than how much they can do. When right methods are employed the child naturally desires to learn, and the institution which does not create within the mind of every pupil a desire to study for the love of learning, fails the true aim of an education.

We have noticed from observation that there are many people with strong minds passing through life without any education from the following reasons:

- 1. They are unable to meet the enormous expense common to so many of our schools. If they are able to do so, they are unwilling to expend their money for that which is not
- 2. The time required to secure even an ordinary education is too long in most edu cational institutions.
- 3. Students are compelled to study many subjects that are not of especial use to them, perhaps are distasteful to them, and thus their progress is retarded.

### The Agricultural Colleges.

The Farmer's Review, of Chicago, Ill., not long since contained some statistics on agricultural colleges, showing their present status. The Germantown Telegraph in a late number contained a paragraph asserting that the Iowa Agricultural College was a useless institution, it having graduated but seven farmers in nine years. This causes Mr. Suel Foster, of Muscatine, to reply with some spirit, and he states that in the Iowa College "every male and female student is required to do manual labor every day of the term. It has a boarding house accommodating nearly 400 persons, and, for rest from study, the girls find useful employment in the working and care of that immense building, as well as in the fruit and flower gardens. The boys find employment in using the plow, hoe, scythe, and among the barns and stock. This manual labor is healthful and economical. In view of these facts, and the further fact that the curriculum is broad and thorough, Mr. Foster very pertinently asks the Telegraph, Where does the uselessness come in?

The Review, in a recent issue, notes the above case, and also that of the Missouri College, of which Prof. Claggett, with the observations of a recent visit before him, writes that he found the most delightful and invigorating intellectual atmosphere he had met with anywhere in the State; and further, that he found present all the needful appliances for intellectual training. Farmers' sons are looked to as the chief support of the institution. Dr. Claggett recommends more practical demonstration upon the farm, under proficient management. He wants it a thorough experiment station, and seems determined to work up the people of the State to carry out this idea.

The Review closes by saying that a thorough experiment station should be established at every agricultural college in this country. "In the first place divorce these schools entirely from the old-time universities, where other departments may be looked upon by the students as promising a more profound or a more popular education, and

sional grant act establishing them was passed - schools for fitting the youth of the country for the industrial pursuits of life. This done, and the experimental farms assume an importance hitherto unknown in this country, for they will then be made to establish facts and demonstrate theories in agricultural science that will promote the wealth and prosperity of the country with a apidity hitherto unknown."

And this is what Kansas is trying to do, as we understand it.—L. R. Elliott.

### To Buyers.

It is hereby gently suggested that those who purchase "education" might find it greatly to their advantage should they exercise the same sense when buying this article that they do when buying other articles. It is also hereby suggested that the great majority of people accept anything put upon the market as "education" without the least knowledge or care respecting the quality, usefulness or benefit of the article offered, provided it has the regular trade-mark. How many tax-payers know what studies are taught in the common schools? How many school boards or trustees know what is actually taught under the name of grammar, arithmetic and the other titles which together make up the course of study? How many parents, even when paying a high price in cash or sacrifice for "an education," discuss the question whether the knowledge they are buying for their children will be of as much value to them as would some other kinds of knowledge? Being vigorously determined that their sons shall be "educated," they put them at some school, foot the bills, and are happy in the consciousness of having done their whole duty to the youngsters.

Suppose they were buying and equipping a farm for Tom, would they purchase anything called a farm, a horse or plow simply because the seller advertised it as the "regular" thing? Not much. They would want to know that the soil was good, the wagon perfect, and the horse sound; and the principle which would guide them to a decision in all their purchases would be the usefulness of the given article to Tom in his particular business. Because some neighbor had bought for his son a "country seat" of five acres, with a fancy house, gilt-edged garden, and fast team, by the use of which the boy couldn't and didn't make a living. this farmer would not feel moved to give Tom the same outfit under the supposition that he was giving him a farm by the proper handling of which Tom would grow

Will some one please tell us what difference there is between buying an education or buying a farm for Tom? In both cases those who deal in the given article put it on the market and offer it to customers at specified rates. In both cases buyers are supposed to purchase because of the real worth of the article to them. But the fact is that many a man who will drive the shrewdest possible bargain in the purchase of a farm, sends his boy to the dealers in "education" to receive anything or everything shoved off under that general title, at the dealer's option. Is that business?

Who determines the course of study in the district school? Who decides what shall be taught under the name of grammar or geography? Is it the people who pay the taxes and whose children receive the education, or is it the dealers in education and the makers of text-books? Would these same tax-payers act in the same way if they wore buying sugar instead of grammar, or make them exactly what it was intended kid gloves instead of geography? With the utmost gentleness we humbly submit that

those who are securing an education for their children, often at a great sacrifice to the mother in the house and the father in the field, might find it decidedly advantageous to examine the article before buying, and to have the dealers show wherein its real value consists.

Educational Calendar. — A wide-awake, spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the INDUSTRIALIST. Geo. W.

in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

Mathematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the former machanic or business man benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

Club Rates.—The regular price of the Kansas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the Industrialist for \$2.75; or the Farmer and Industrialist for \$2.25; or the American Young Folks and the Industrialist for \$1.00.

Asricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

A Kansan Abroad, By Noble L. Prentis.
In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of title of "Prentis in Europe;" the title of "PRENTIS IN EUROPE;" "PIKE OF PIKE'S PEAK," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "THE WORLD A SCHOOL," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher. Topeka, Kansas.

Printing !- Daily instruction and drill in the Departments offer a thorough education in the Literary Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing and is in charge of a practical of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST by the Department furnishes advanced students the requisite drill in newspaper work.

Kansas Text-Book, for teachers and students. ELEMENTS OF AGRICULTURAL GE-OLOGY, for the Schools of Kansas, by Prof. Wm. K. Kedzie, M. S., of the Kansas State Agricultural College.

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact."

In two parts: Part First—Elementary Geology Part Second—Origin and Formation of Soils. Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a Contemporal for smaller of week Kansas productions. The only Kansas House to secure a Centennial award for quality of work. Kansas work, by Kansas mechanics, at this Kansas establishment. Pronounced "faultless."—Felter's series of School Records, made to comply with Kansas laws. by a Kansas author and Kansas publisher. The best School Officers' Records in the market.—Felter's Elements of Bookkeeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.—The Annals of Kansas, a marvellous history of Kansas, written and printed in Kansas.—The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for twenty-five cents per annum.—The best Railroad, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment for Kansas equal to the best in America.

Address. GEO. W. MARTIN, Topeka, Kas.

SATURDAY, JUNE 15, 1878.

Miss Emma Campbell paid her compliments to the Printing Department one day this week.

We have been unable to fulfill our promise to print Mr. Wilson's oration in this issue. It will certainly appear next week.

Amos Wilson is clerking in a bank at Solomon City. We understand he has been offered the position of telegraph operator at that place.

Rain, rain, rain. It has rained three days this week, on account of which the masons have been unable to do much work on the new building.

E. T. Carr, of Leavenworth, architect of the new building, spent Monday forenoon on the Hill with the contractors, and took the eastern train at

Harvesting on the College farm has been postponed one week "on account of the weather." A very fine crop of wheat is now ready for the

Mr. Walters was on the Hill last Saturday, but is now rusticating in the country. The change and relief from duty seems to agree with him. We know it would with us.

The Manhattan Horticultural Society met in the Horticultural building yesterday afternoon. Judging from the number in attendance, it is safe to say they had an interesting meeting.

We heard Prof. Shelton say the other day that a piece of alfalfa which had just been cut, and over which a dozen hogs had run all spring, would yield nearly two tons to the acre, and be ready to cut again in six weeks.

A gentleman from Ohio who visited the College on Wednesday, and who had lately been as far west as Utah, said that this section of country was far superior to anything he had seen during his travels. This is the universal testimony.

The report reaches us that Miss Emma Eckman was married on the 12th inst., to the editor of the Osborne County Farmer. Miss Eckman attended this institution in 1876, and was one of the finest young ladies that ever graced our College walls. Brother Barnhart, you have a prize, Accept our

George A. Gale, of the firm of Todd & Gale, proprietors of the Manhattan Nursery, will start on a canvassing tour about the first of July. He expects to travel in Davis, Clay, Washington and Marshall counties. The people of these counties can safely deal with this firm, as they handle nothing but first-class stock.

In sending us the names of some persons who desired copies of our paper and catalogue, Tully Scott, Beloit, Kas., speaks of our College in this wise: "Since I returned home I have been questioned by many of my friends with regard to the College,-its advantages, disadvantages, expenses, etc. I have tried to convince them what I honestly believe, that the Agricultural College is the place to get the cheapest, most thorough, and beneficial education for the different vocations of

George Gale and Frank Abbott had a very pleasant croquet party at Prof. Gale's residence on Monday evening. The following persons were present: Gus Platt, Misses Emma Campbell, May Campbell and Emma Hoyt, and A. A. Stewart and wife. A couple of hours were quickly spent with the balls and mallets, when the party was invited into the house and presently seated to a table bountifully loaded with fruit, cake and flowers, which were beautifully arranged. After lingering with the strawberries, raspberries, oranges, cakes and lemonade as long as a due regard for health and the rules of etiquette would allow, the table was deserted, all pronouncing the feast as delicious a one as they had lately enjoyed. Another hour glided swiftly into the past while we chatted together in Prof. Gale's parlors, and it was time to go home. As we parted. the thought intruded itself upon us all, how nice it would be to have more such vacation gatherings.

### THE COLLEGE STOCK.

Many testimonials to the excellence of the College stock, and the satisfaction it has given to purchasers, are received from time to time. We give below a few extracts from letters that have been lately received:

Mr. N. H. Gentry, Sedalia, Mo., the well-known breeder of Berkshires and the owner of the celebrated boar, Lord Liverpool, for which \$700 was paid, says of a Berkshire recently obtained from the College: "I got the boar home safely Saturday, and am perfectly delighted with him. He is certainly a wonderful pig."

Prof. R. B. Spitler, Sup't of Public Instruction, Ellis, Ellis Co., Kas., writes of a Jersey heifer pur- change.

chased of the College: "She should have her calf in four or five weeks, but she still yields as much milk as ever, and I do not know how to 'dry her up.' We make from four to five pounds of butter per week, and are not sparing in our use of cream. We are much attached to her."

Mr. Andrew Pringle, Maple Hill, Kas., writes that the Short-horn bull purchased last winter from the College farm "has given great satisfaction. I have never seen a bull thrive and do so

Hon. W. P. Popenoe, Treasurer of the State Grange, writes: "The Berkshire sow I purchased of the College farm has grown into a good one. An old Ohio breeder said of her the other day, that if there were better Berkshires he had never seen them. Shall I send him to the College farm?"

To save correspondence, I wish to say that we now have no Berkshires for sale, but are prepared to take orders for summer and fall litters. We expect to offer representatives of the following highly prized families: Sallies, St. Bridges, descendants of imported Lady Leonidas, Miss Smiths, and others, by such noted sires as British Sovereign II, 533, and Cardiff's Surprise, 1965. First orders will get first selections.

We have still for sale a few grand young red Short-horn bulls, and two Jersey bulls. All to be had very low. Address E. M. Shelton, Sup't Farm.

#### ENTERPRISE ITEMS.

L. R. Elliott sold six tracts of land on Monday. Messers A. J. Pillsbury, Jno. Merrifield, Will Elliot and Will Brous started on their trip West on Monday. They had three horses, a spring wagon covered with a bob-tailed wagon sheet, a tent, a skillet, take oven, broad brimmed hats, guns, pistols, fish bate, sides of bacon, grub boxes, a camera for taking pictures, and many other articles too

The meeting at Stackpole's office Monday evening to form a military company effected a permanent organization with W. C. Johnston as President; Charles Waring, Vice-President; Henry Crump, Secretary; G. W. Higinbotham, Treasurer. A constitution and by-laws were adopted, and a petition to the Governor was signed. The old soldiers appear to be going into the organization with all their old enthusiasm; and these, with those that never fought, bled and died, but who are anxious to do so, will raise a company that Manhattan will be proud of. The meeting at Stackpole's office Monday even-

### NATIONALIST ITEMS.

Moody Powers, across the Blue, has one hundred acres of the best corn in the community. It is nearly head high.

A span of splendid horses were bought in our county for the Fire Department at Topeka and shipped down on Monday. The Riley county stock and horses are justly celebrated.

The Misses Beckwith returned to their home in Ottawa Wednesday, to spend the summer vacation. We hear it stated that Miss Beckwith is to have charge of one of our district schools for the fall term. Her sister will probably return to attend school at the College as heretofore.

It is universally admitted that the bottom has been reached in Kansas, and that now we are on the rebound. It is difficult to find a vacant house anywhere, and still the people are pouring in. It is therefore quite certain that it will not cost less in the future to build than now, and the probabilities are that it will cost more. If these premises are true, the conclusion follows that those who are able to build ought not to delay.

### JUDGE HORTON AND THE JURY SYSTEM.

Chief-Justice Horton's views on the jury system seem to meet the general approval of the press.—

It is worthy of the careful study of our legislators and all who wish for the pure and just administration of the laws. The learned Judge is not in favor of the abolition of the jury system, but believes in it as the foe of oppression and the friend of freedom, as the enemy of tyranny and the political guardian of liberty, as the strong opthe safeguard of personal rights. But he advo-cates four important changes or modifications of the system.—Blue Rapids Times.

Chief-Justice Horton has advanced and we think decidedly sensible views regarding the "jury system," which he recently expressed in a lecture to the students in the State Agricultural College. He believes in the intelligent juror, and thinks that in all but criminal actions the liti-gants should be obliged to pay the fees of the poor jurors. We believe the day is not distant when these and other just and wise views held by him upon the jury system will be in statute form, and in common practice in the courts of Kansas. \* \* These are a few of the points made in this admirable lecture. It is full of good sense; the lecture should be published in full.—Concordia

Judge A. H Horton, of the Supreme Court of this State, in his address before the students of the State Agricultural College, has taken up the cudgel in defence of the jury system. He does not consider ignorance a necessary qualification for a juror, neither that forming an opinion from reading statements of facts in public journals should debar a person from sitting on a jury. It has become a habit to talk of the jury in connection with the "dark ages," until the individual who dissents therefrom is styled an ignoramus, etc. The testimony of so able and respected a jurist as The testimony of so able and respected a jurist as Judge Horton will go far to correct an erroneous sentiment that seems to exist. It would be but a common sense view to consider that the man of intelli, and discretion, even though he may have read some newspaper accounts or heard some street talk, would be more likely to judge of the evidence given before a court in a fair, impartial light, than he whose ignorance has made him the creature of superstition and prejudices. How many times during a closely-contested suit does the broad, comprehensive mind of the juror change as new developments are made.—Ex-

### DIRECTIONS TO APPLICANTS.

#### TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he

will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term or as soon thereafter as possible. each term, or as soon thereafter as posssble.

#### GRADES.

Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in

the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations recitations.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

#### EXPENSES.

There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instru-ments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

### LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.-Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. — When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

### AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise

\$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the peach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

#### RULES.

1. Behave as a true man or woman should, at all

times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.
3. Penalty: "Leave!"

### PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Depart-ment, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Educa-tion. Price, 75 cents a year. Address A. A. Stewart, Manhattan.

#### CALENDAR.

Spring Term 1878.—Began Thursday, Jan. 3d, and will close Wednesday, May 22d.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

#### TO NEW STUDENTS.

Bring the text-books you have been using. On string the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after charge for arrealment. after chapel, for enrollment.

#### RAILROAD TIME-TABLE.

#### KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES.

Going East...... 12:20 P. M. Going West..... 4:10 P. M. FREIGHT ARRIVES.

Going East...... 2:55 P. M., and 10:30 P. M. Going West..... 8:20 P. M. and 6:20 A. M. Passengers with tickets are carried on any of

Passengers with the above-named trains.

GEO. C. WILDER, Agent.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

S. Roberts, M. D .- Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reckoned as an "industrial."

mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

**Dress-Making and Millinery.**—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a prestical teacher. all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the highest breeding. Address E, M. Shelton, Manhattan,

Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mix Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan.

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

reglish Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Manhattan Bank.—E. B. Purcell, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

# KANSAS STATE AGRICULTURAL COLLEGE.

Board of Regents.

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WM. K. KEDZIE, Prof. Chemistry and Physics.
E. M. SHELTON, Prof. Prac. Agricul., Sup't Farm.
E. GALE, Prof. Botany and Horticulture.
J. E. PLATT, Prof. Elem'y English, Mathematics.
JNO. D. WALTERS, Teacher Industrial Drawing.
HON. D. J. BREWER, Lecturer on Practical Law.
A. TODD, Sup't Mechanical Department.
A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agriculthe knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its which was the state of the state require, its the of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

### FARMER'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology. 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Practical Geometry. 4. Horticul, Landscape Gardening. 5. Organic, Analytical Chemistry. 6. Practical Surveying.	1. Physiology. 2. Rhetoric. 3. Algebra. 4. Practical Agricul. (elementary). 5. Physics. 6. Industrial Drawing.	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arithmetic, Book-keeping. 6. U.S. History, Industrial Drawing.

WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

### WOMAN'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Farm Economy, Special Hygiene 2. Geology, Mineralogy. 3. Polit'l Economy, Practical Law 4. Zoology. 5. Phys'c'l Geography, Meteorology 5p. 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Industrial Drawing. 4. Horticul., Landscape Gardening. 5. Organic, Household Chemistry. S. 6. Household Economy.	198400	1. Drill in English   2. Drill in Arithmetic.   3. Industrial Drawing.   4. English Structure.   5. Adv'd Arith, Book-keeping.   6. U.S. History, Industrial Drawing.

# MECHANIC'S EDUCATION.

MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. The Farm.
The Nursery.
Carpentry.
Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

FOR FEMALE STUDENTS. Dress-making. Printing. Telegraphy. Scroll-sawing. Carving.
Engraving.
Photography.
Instrumental Music.

Blacksmithing. | Instrumental Music. Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

### DEPARTMENTS OF INSTRUCTION.

#### DEPARTMENT OF AGRICULTURE. PRACTICAL AGRICULTURE.

Second Year:—General principles of breeding; history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the play ways as all and substitution; of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage how to lay out, a system of drains; house drain-

age; sewerage.

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed hus-bandry and special farming; the selection and bandry and special farming; the selection and arrangement of the farm with reference to the arrangement of the farm with reference to the system to be pursued; rotation of crops; genera-advantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feed-ing; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY. Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

# DEPARTMENT OF BOTANY AN PRACTICAL HORTICULTURE

This department embraces a course of instruc-This department embraces a course of instruction in the elements of botany, structural and systematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practical drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of prun-ing; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are ac-companied by a practical drill in in the work of laying out and plotting grounds topographically.

### CHEMICAL DEPARTMENT.

PHYSICS.

This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to their history, properties, manufacture, and especially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboraCHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Lahoratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY.

Embracing the composition of the atmosphere; atmospheric pressure; temperature and humidity; laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observations is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallography, with the properties, forms and uses of the principal minerals of the United States. Blowprincipal infinerals of the United States. Blow-pipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composition of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of fruits etc. fruits, etc.

SPECIAL COURSES Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

### ENGLISH LANGUAGE.

Words are simply tools used to express ideas; Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called language, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attenally found in literary colleges, the constant atten-tion given this subject by all the departments, and especially the practice required in the print-ing classes, affords superior advantages to the stu-

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; ters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of compositions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and penman-

ship.

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter
the printing class, the printing-office being the

work-shop of language. STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS.—The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the topics included are:
Roots: What are they; their origin; their force

and value as an element of language; the manner of their growth into different parts of speech.

Stems: Their derivation; their offices and prop-

erties; their relation to other parts of words. Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems.

Compounds: Their value; their properties and uses; the laws governing their formation.

uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected metra, but ordered accuration. tion of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given operations are performed, but because they can nei-ther add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops construction of houses, sales of expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING
Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

Algebra is included in the course as a preparation for the study of Surveying.

DRAWING.

The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when layand of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that tagte which comes from skill in using lines this taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Department.

PRACTICAL GEOMETRY.

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block. grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical principles and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to

woman.

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading. "Farm Economy."

heading, "Farm Economy,"
GARDENING is included in Practical Horticul-

ture. See heading, "Landscape Gardening."
HOUSEHOLD CHEMISTRY. See heading, "House-hold Chemistry."
HOUSEHOLD ECONOMY

HOUSEHOLD ECONOMY
Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and en laboratory has been completely furnished, and en laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlastingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the purple as it is to give laboratory. and pleasure to the pupil, as it is to give laboratory practice in chemistry - and no more expensive.

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#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and care-fully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocain which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as

Normal education:

Teachers	1.13=	1.13
Professional education:		
Ministers	0.43	
Lawyers	0.55	
Doctors	0.73 =	1.71
Industrial education:		
In agriculture	59.13	
In manufacturing and mechanical	14.63	
In personal service	13.89	
In trade and transportation	9.51=9	97.16
	- Account	00.00

AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its clitzens, the first institution endowed and put in expension by the State serious endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education. ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway with its connecting lines gives a ready control. way, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY. The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English lanligent and expert in the use of the English lan-guage; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thor-ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a following sciences as essentially useful to an course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dress-selving printing telegraphy, carving engraving making, printing, telegraphy, carving, engraving

### The Practical Man.

[An Oration delivered by Amos E. Wilson, a member of the graduating class of the Kansas State Agricultural College, Tuesday evening, May 21st, 1878.]

Nothing, if not practical. This idea has taken possession of the mass of mankind. It governs the course of study in our colleges. By comparing the curriculums of to-day with those of twenty years ago we notice a great change. The present students of these institutions know more of Lincoln and Bismarck than of Brutus and Cicero. Their minds are not filled, to the exclusion of all other subjects, with "The Cause of the Fall of the Roman Empire," or "The Philosophy of Thought;" but they can ably discuss the bearings of "Foreign V ur" and the "Silver Bill" upon our nation. This change in the courses of these institutions indicates a change in the wants and requirements of the age. Whatever may have been the case in the past, certain it is that the active world, of which we are about to become a part, is not calling for men skilled in Greek and Hebrew, but for wide-awake, practical men, - men trained in the sciences and the living issues of the day.

Man wastes his own time and adds nothing to the happiness of his fellows when his thoughts are given to such themes as the worlds lying beyond the reach of the telescope, or to planning a more systematic arrangement of the heavenly orbs.

Life is real, life is action, and should be governed by three great purposes. The first is the determining of a man's calling in accordance with his ability. It is often asserted that natural adaptability has nothing to do with the choice of a vocation. This idea is erroneous. Can we by education and surroundings produce a Gallileo or Shakespeare? No! The individual must thoroughly study his natural talents, and in order to be successful choose that vocation | lin we are debtor for the discovery of the for which he is fitted. The victory is un- utility of lightning - the motive power of certain if he strive for two goals. Milton, the grandest of poets, one born - not made, wrote but little good prose, and as a humorist was a failure. Each man has a special work to perform, for which his talents exactly qualify him.

His second purpose should be to secure an education fitted to his calling. The modern theory has too often for its basis, Be ignorant of nothing. Sydney Smith, on the contrary, says: "Have the courage to be ignorant of a great many things in order to avoid being ignorant of all."

Man's third object should be to throw his soul into his work, seeking its most perfect accomplishment, concentrating his whole power upon the aim of his life. Many are the failures caused by the simple neglect of this rule. Man is not born to solve the problem of the universe, but to find out what he has to do and do it. In whatever occupation men may engage, there are certain requisites to success. One of these, namely, the attention to vital details, forms the difference between the theoretical and are charmed by its touches of nature. The the practical man; between Thomas Edison, degree of an author's success depends also Barnes' Monthly.

the inventor of the phonograph, who is startling the world with his wonderful discoveries, and his fellow operators who have equally observed the same principles yet divide men into two classes, practical and theoretical - the former the workers, the latter the drones. We also notice two classes of acknowledged practical men. The first is the lowest grade of humanity, his sole object being to live. He performs manual labor, never knowing or even thinking of the forces he is continually employing, while perhaps they are the grandest of God's creations. He has no care for the est, most ennobling vocation of mankind. advancement of his fellows, his highest ambition and desire being to gain a mere livelihood. The other type of a practical man is the one who largely devotes his time and talent to the benefit of his brother. He gains an education suited for service in his vocation, and then places his knowledge in such form that others may profitably use it. While performing this work he has a degree of pleasure utterly unknown to all other classes, and at the same time is winning for himself distinction and honor which will outlast the noblest monument. He thinks, he reasons, he grasps the principles underlying his several operations. His pleasures and joys are of a character that cannot be reached by the members of any other group. He is the only person who can realize to any great extent the wisdom of his Creator and preserver. That immortal portion of man, the soul, is developed. He does right from the love of right, and each faculty is trained. To this class of men we are indebted for all our useful inventions, the pleasure and comfort of which we now enjoy.

As we scan the pages of history, we observe the honored names are those of practical, successful men. To Benjamin Frankour electric telegraph. John Gutenberg was the inventor of printing by movable types: to him we owe our press with its infinite power. We are each conversant with many examples of this class: thus Newton, Arkwright and Rothschild, through their practical ideas, have gained worldwide honor and fame. The truly practical merchant is the one who understands perfectly the principles in buying and selling merchandise, and at the same time studies the relation of the present to the future. He sees that cotton is now selling at a low figure: correctly believing it will rise, he invests and is made wealthy. The great authors, those whose works live through the ages, write in simple language, calling things by common names and shunning the temptation to drive a substantive and six adjectives. Bunyan, the immortal tinker, by his simplicity and naturalness, is enabled to touch the hearts of all. Thousands have read his book with tears: the unlettered man and the squeamish critic alike

upon his ability to portray things as if they were real and not imaginary.

This principle of practicalness is applicable to all classes; but in the Western States could not apply them. We may therefore it is adapted to the farmer, who should by careful study determine what course will gain for him that physical type of wisdom gold, and also enable him to devote a portion of his time to mental improvement. If this vocation were filled with this class of practical men, the pursuit of agriculture, now derided and abused (chiefly by the farmers themselves), would take its position as the Creator designed it to be — the high-

"Press on then, Earth has need of thee; The metal at the forge is red, The ax is resting by the tree, The grain hangs heavy in the head. Heed not who works, but labor thou; Lay bravely hold, nor pause, nor shrink; Life's Rubicon is here, and pause not dubious on the brink."

THE Kinsley Graphic thinks that 25,000 ersons have become residents of the counies west and southwest of Newton, since the first of last January.

The experiments of the late George Grant, of Victoria, Kansas, have demonstrated the wisdom of crossing the Galloway cattle with the Texans. The Galloways are a splendid beef cattle, easily fattened, black in color, and without horns. From eighty to one hundred per cent of the half-breed calves, from Texas cows, possess all the characteristics of the full-blood Galloways. No horns, black color, and much improved n every respect.—Junction City Tribune.

In Ohio the English sparrow is regarded as such a nuisance that the people who know its habits are talking of obtaining a legislative enactment permitting its extermination. Farmers discuss the evil, and the general verdict of the tillers of the soil is that the bird is a destroyer of grain, and that as a result of its disposition insects have increased in number, and in consequence of the driving away of other birds, crops and trees have suffered more than ever from the ravages of worms.-Chicago

NATURE has been prodigal with its bounties in Kansas. A fruitful soil blooms and blossoms with a wild wealth of luxuriant vegetation. Trees flourish wherever they are planted, hedge-rows thrive and grow like the prairie grass, flowers take on loveliest hues, and climbing vines exhibit an almost tropical luxuriance of growth. We see more and more of these about our Kansas homes every year, and they are adding to the contentment and permanence of our population, as well as increasing that æsthetic taste which is the best evidence of a cultured life.—Irving Gazette.

Do you ask what will educate your son? Your example will educate him; your conversation with friends; the business he sees you transact; the likings and dislikings he hears you express,—these will educate him. The society you live in will educate him; your domestic circle will educate him; above all, your rank, your situation in life, your home, your table, will educate him. It is not in your power to withdraw from him the continual influence of these things, except you were to withdraw yourself from them also. Education goes on at every instant of time; you can neither stop it nor turn its course. What these have a tendency to make your child, that he will be .-

SATURDAY, JUNE 22, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

THERE is no greater difference between the skill valuable to a lawyer and that which is profitable to a sailor, than there is between the skill needed by a farmer and that needed by a machinist, or that of a druggist and that of a printer. The same knowledge has a different value to each. Putting off the choice of an occupation until after the student leaves college as a graduate, instead of making it when he enters college, or as soon thereafter as possible, is a grand mistake. Studies are taken and years spent without a definite aim: much is acquired only to be forgotten in after life, simply because not demanded by the occupation of after life; and much is omitted that would have been of great value. Few fathers would send a son to New York to spend \$10,000 without first deciding upon what to purchase. But many fathers send their sons to college to get an "education," without further thought. Education for what? What does the boy want to buy? - ability as a lawyer or as a farmer, as a preacher or as a mechanic? The sooner the objective point is decided, the more profitable will be the expenditure of time, brain and muscle.

THERE are two great branches of mathematics: the one uses numbers or symbols for computation, the other uses lines for representation. As a tool, science chiefly handles mathematics in the solution of abstract problems; whereas, business handles it for profit. And just as the use which the sculptor makes of mathematics differs from that which the astronomer makes, so ought their antecedent study of lines or of symbols to differ. The several arts and trades use either or both branches as their interests indicate. The tinner makes more applications of geometrical drawing in a week than a book-keeper does in a life-time. Yet the assertion may be risked that, in the routine work of the great majority of trades, the skill in representation which is acquired by a mastery of industrial drawing is worth more than the skill in computation acquired by the study of the higher mathematics, arithmetical skill being assumed in both cases. The number of tools used by workmen in determining lines, compared with those used in computing, tells the whole story; for while the stump of a bad pencil teed to run a year without repairs, to keep suffices for the latter, there are for the former in any climate, and to sit down on misthe straight-edge, chalk line, rule, square, level, plumb, gauge, dividers, tape and chain. Where a mechanic spends five minutes in making figures, he spends fifty in laying off lines. So that, if we regard practical mathematics as a useful tool, skill in representation has a greater cash value to him than skill in algebraic computation; and, therefore, in his education greater prominence should be given to the mastery of lines than to that of symbols.

# Bombology is the Thing.

Several of the studies found in the public schools, and notably in colleges, are taught on the plea that their mastery is supposed to be an excellent discipline of the student's mind. Just what is meant by the convenient phrase "mental discipline," is not exactly clear; but whatever it is, that is the reason why these branches are asserted to be essential elements of an education. The teaching of studies which give information or skill that can be profitably used in daily life, may be accounted for upon the score of chants refuse to trade for any bombological direct worth to the pupil. But the reten- product. So that as nobody can make a that ought to be honey-bee-ism.

tion in the course of many others can only be explained upon theory of "mental discipline." And our observation is that when a professional educator fails to make the claim for a specified study that it gives useful knowledge to the pupil, and, in lieu thereof, sets up the defense that it is an excellent agency for "disciplining the mind" or for inducing "culture," you may safely conclude that the said study has very little if any real worth to the overwhelming mass of persons.

Is it true that the mind is not so well trained by the study of useful as it is by the study of useless knowledge? because that is the exact point in debate. And both as an illustration of the manner in which the fancy branches have found their way into the usual course, and also of this point, we submit the following imaginary case:

Suppose that a century ago, more or less, some scientific gentlemen of great leisure and scholastic eminence had grown enthusiastic in noting the habits and blessedness of the bumble-bee; that their observations, and, especially their conflicting speculations, concerning this valuable buzzer, had been classified and recognized as a distinct science;" that, under their aristocratic leadership and persistent writership, it had become fashionable to talk learnedly of the 'apis bombus" - which same is scientific high jinks for bumble-bee; that Oxford or Yale had placed the science of "bombology" in its course; that distinguished educators were in the habit of dogmatically asserting the utter and mournful incompleteness of any education which did not include at least the elements of bombology and that in due time, as the result of this pressure and of the efforts of men who wished to make a living by teaching it bombology had not only found its way into the public schools of every State, but was universally claimed by educators as an indispensable part of the educational machinery. Of course this is a fanciful case, but nevertheless it truthfully describes the exact process by which very many of the sciences have gotten into our schools and

Much may be said in favor of the bumblebee. He is ingeniously constructed, admirably put together, dignified in his movements, and has a pompous way of announcing his presence that attracts attention. He has all the latest improvements, being a stem-winder, with a self-adjusting tension, and the Westinghouse air brake; is guaranchievous boys with the utmost celerity and effect. There is nothing plebian about him, and he looks with scorn upon those mercenary bees who store away honey. He is one of your art-loving aristocrats, who carries an orchestra with him, who revels in the sunshine, feeds on dainties, and who for bulk, beef and buzz is a very king among bees. He challenges admiration, not upon the score of being useful to anybody, but solely on the ground of his gorgeous makeup; and far be it from his high-toned soul to seek the observation of avaricious men by honied inducements,--they must love him for his own sake or not at all.

Hence, the science of bombology would be a "pure" as distinct from an "applied' or useful science; one to be studied for the love of knowledge as a mass of curious information, and not at all as a help to any boy who had to earn a living by his hands. Farmers don't raise bumble-bees, because mechanics won't buy the bombus and mer-

profit out of the bumble-bee, no information directly profitable to the industrial classes could be conveyed by the science of bombology. It would be retained in the course of study, not on the plea of utility, but solely as a means of "mental discipline" or "culture," or, to be more exact, because of a want of common sense.

But as a means of mental discipline and general information much might be said in favor of bombology, provided it had the usual multitude of Latin terms, as long and many-jointed as a cane-pole, peppered through it. Its study would familiarize the pupil with anatomical wonders, with the instincts and habits of a sweet singer; lead to a closer observation of the minute things of nature, thus training the perceptive faculty; beget an interest in related sciences: necessitate accuracy in deducing just inferences from observed facts; exercise the physical, polish the mental, and broaden the moral nature; and, best of all, create an admiration of the ingenuity and beneficence of that Creator who not only made the bombus but all nature.

It wouldn't be any slouch of a science. Patient scientists would gather bumble-bees from eyery continent, stick pins through them, and label them in Latin that Virgil couldn't understand. Fossil scientists would contribute species now fortunately extinct, but compared with which the present bombus was only as a monkeyless hand-organ in comparison with Gilmore's brass band. But their fame would dim before the resplendent glory of that immortal bombologist who should find a petrified bumble-bee that died in the act of wiping its left eye with its off hind foot. Any bombus might do so with his left foot, but the excruciating value of this specimen would lie in the wonderful gymnastic twist of the right leg; and the college which secured that specimen would crow over the other colleges and talk a two-inch stream on the great importance of bombology as essential to "culture." The common schools would be properly scolded for not teaching elementary bombology. The love of pure science and general information would be stimulated - not because bombology told anything really worth knowing, but simply for its own sake. The attention of students would be called to the value of this science as a specialty, and occasionally one of them might become a distinguished Professor of Bombology in the ancient University of Bamboozle, and there make a pleasant living and a deathless fame as a guide of youthful bombologers in their search after

But now, couldn't the same training of mind be given by the study of the honeybee instead of the bumble-bee? Wouldn't equal attention to its structure, habits and handling give as much mental exercise, culture and power as would a study of bombology; and where one pupil could earn a living as teacher of bombology, wouldn't a thousand men or women earn a living by selling honey? For whose benefit should the public schools be run - for that one bombologer, or for the thousand industri-

We are not opposed to science in its proper place and when it has anything to tell worth hearing. But we are getting tired of having a lot of chaff crowded on us just as if it were wheat and simply because it is advertised as "science;" and we are more than disgusted at the amount of chaff which, under the name of science, is crowded into the public schools and duly paid for by public taxes. Strictly there is no such science as bombology, but practically there are many studies in the standard course which are purely hombological; and in the public schools there is a heap of bumble-bee-ism

reachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W.

abits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects in-imical to the Kansas Farmer.

Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

A gricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay Riley, and Dickinson well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

A Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of PIKE'S PEAK," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "THE WORLD A SCHOOL," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher.

**Printing!**—Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well fur-nished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST by the Department furnishes advanced students the requisite drill in newspaper work.

Kansas Text-Book, for teachers and students. Elements of Agricultural Geology, for the Schools of Kansas, by Prof. Wm. K. Kedzie, M. S., of the Kansas State Agricultural College.

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact."

In two parts: Part First-Elementary Geology Part Second - Origin and Formation of Soils. Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a productions. The only Kansas House Centennial award for quality of work. Kansas Centennial award for quality of work. Kansas hav Kansas mechanics, at this Kansas Felwork, by Kansas mechanics, at this Kansas establishment. Pronounced "faultless."—Felter's series of School Records, made to comply with Kansas laws by a Kansas author and Kansas publisher. The best School Officers' Records in the market.—Felter's Elements of Bookkeeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.—The Annals of Kansas adopted by the schools.—The Annals of Kansas, a marvellous history of Kansas, written and printed in Kansas.—The Educational Calendar, a for the Officers. printed in Kansas.— The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for twenty-five cents per annum.—The best Railroad, County, Bank and Mercantile Blank Book
work to be had anywhere, all done by Kansas
mechanics. Our ambition is to build an establishment for Kansas equal to the best in America.
Address. GEO. W. MARTIN, Topeka, Kas.

The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixtyfour pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case,

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

popular taste. Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible. manner possible.

SATURDAY, JUNE 22, 1878.

We shall publish Charles McConnell's oration

The masons on the new building have reached the second story.

Mrs. Cripps is daily expecting a daughter to spend the summer with her.

Mark Reeve, Henry Coe and Gus Platt, three of our students, have been at work in the harvest field on the College farm.

We have had delightful weather this week which causes everybody to be smiling and happy Work of all kinds has been pushed right along.

Prof. Gale went to Garnett on Monday last to attend the semi-annual meeting of the State Horticultural Society. He is expected home this

We expect a large attendance at the College next term. Applications were never more numerous; and they are of such a nature as to justify our expectations.

Already the old students are making arrangements about boarding places for next term. Miss Dora Kinsey is one of the first to write. She says that a lady friend is coming with her.

Rev. R. D. Parker has been quite ill for a week past, but is now slowly improving. Rev. C. F. Mallory, of the New York East Conference of the M. E. Church, will fill the pulpit at the Congregational Church to-morrow.

Prof. Shelton has lately received from the Department at Washington a large box full of specimens of South American woods, including mahogany and all the finer grains. It is quite a valuable and interesting collection.

The farmers in this vicinity are very generally engaged in harvesting this week. The reaper has been running on the College farm since Tuesday. The grain is very heavy, necessitating in some places the division of bundles.

A very racy and interesting letter has been received from a member of the editorial excursion party. It is from an unexpected source, and we are sorry it came too late for publication in this issue. It will keep until next week.

Improvements have been so quietly going on in the new barn as to escape our attention, until directed to them by some one else. The covering of the main passage-way, so as to afford more bay room above, constitutes the principal change.

Mr. George E. Rose, Tehama, Cherokee county, writes as follows: "Accept my thanks for the favor of the Industrialist during the past two months. Through its influence my brother and I have determined to attend your College the coming year."

We received a letter from President Anderson last night, dated at Put in Bay, June 18th. He expected to be in Springfield to-day, will be in Atchison Tuesday, and hopes to be home next Thursday. He says he has been having a splendid | nue. time there - sailing.

Mr. O. W. Bill, of Manhattan, has purchased of the Farm Department the young Short-horn bull to which we referred a few weeks ago as having a remarkable weight for his age. This is a noble young animal, well bred, and Mr. Bill is very fortunate in obtaining him.

Persons who contemplate attending College next term are invited to write short letters to the INDUSTRIALIST, on educational and farming interests, and general news. Any questions which they may have to ask regarding the College will be cheerfully answered through the paper.

The Manhattan Guards had a meeting at the County Hall on Monday evening, were regularly and fully organized, and elected a full set of officers. Dr. M. B. Ward was chosen captain. A petition has been sent to the Governor, and the Guards eqpect to receive their arms and purchase suits in a short time.

We would be glad to have many of the students follow the good example which Mr. Mann has set and send us occasional letters from their respective localities. Such correspondence, if boiled down and to the point, will be very acceptable to us and especially interesting to our student readers. We could publish two or more short letters a week. Let us hear from C. O. Smith and Will Sikes next.

Manhattan must lack real, genuine patriotism. While she compares favorably with and often excels other towns in most things, she is always

year, while Ogden, Randolph, Wabaunsee, Wamego and Milford, are preparing for a grand time on the Fourth, Manhattan has not made a move.

#### STUDENT CORRESPONDENCE.

NEW CINCINNATI, Kas., June 15, 1878.

Editor Industrialist: - We are having a heavy shower this morning; and thinking that a few lines would be interesting to you, I will proceed to write the same. Soon after leaving Manhattan we found many of the farmers busily engaged in harvesting. About an hour before sundown we passed through T. C. Henry's famous wheat field. On either side of the railroad, for some distance the ripe, golden grain extended almost as far as the eye could reach, affording a striking example of what capital, energy, and Kansas climate and soil can accomplish.

After passing through "oceans" of wheat, I reached the terminus of my journey by rail. The next morning I took the stage, and after a cool and delightful ride of thirty-five miles, over a portion of the most beautiful part of our State, I arrived home. After my absence of nearly two years, I find the country materially changed. A great many trees have been planted, hedges started, and numerous other improvements made. We have an immense crop of wheat which is being rapidly harvested; and if the wet weather does not continue, the larger portion of it will be secured in ten or twelve days.

Allow me to congratulate you on the clean "face" which the INDUSTRIALIST presented last week. It is thought highly of here by those who receive it. I have visited several printing-offices since I left Manhattan, but found none as neat and filled with such an air of good nature and cheerfulness as pervades your office.

But I must close. My "furlough" seems to agree with me, as I have gained in weight and am enjoying myself hugely. JOHN MANN.

#### ENTERPRISE ITEMS.

The Kansas River was bank full last Saturday, owing to the heavy rains west.

A great many people are stopping at Manhattan this summer for comfort and health. It is becoming quite a resort for pleasure seekers.

The finest cheese we have ever eaten came from the Wild Cat Factory the other day. The manufacturer evidently understands his business

In view of the recent hurricanes in the west, an eastern paper thus alters Greeley's advice: "Young man, go west and blow up with the coun-

Mr. I. Childs brought in some potatoes the other day, the largest of which measured 13½ inches in circumference. He says they were just 62 days

W. P. Higinbotham has two machines at work in his large wheat field, a dropper and a self-binder. These with seventeen hands manage to harvest about twenty acres per day. The wet weather greatly retards them.

Sup't Billings informs us that he will hold a Teacher's Institute sometime in August. There were only three county superintendents in the State who conducted the Institutes of their re-spective counties last year, and Mr. Billings was one of them.

# NATIONALIST ITEMS.

Peaches are nearly ripe.

The School Board have purchased seats for the ew school-house.

Al Houghton is having his livery stable moved from Houston Street to second, north of the Ave-

The raspberry crop is the largest this year ever known in the State, and the fruit of an excellent Our town clock for the new school-house is ex-

pected every day. It will be a great convenience to the town and vicinity. H. M. Williams, of Ashland, left some plums on our table Wednesday that we pronounce very

ever saw anywhere. Two or three hundred pounds of extra fine butter is shipped each month from the creamery of Mrs. A. W. Hayes, to St. Louis. Riley county stock and butter are getting famous.

fine. He says he has the largest crop of grapes he

Who ever heard of corn being in tassel in May and potatoes being forty cents a bushel the first week in June? Why, we used to think if we had new potatoes and spring chickens by the 4th of July, we were doing well, but here they are, both full grown, a month earlier.

# DIRECTIONS TO APPLICANTS.

# TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted. Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as possible. Candidates for admission must be fourteen years

GRADES Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. behind in her celebrations of Independence Day.
There has not been a good celebration here in the last five years, to our certain knowledge. This excluded from the Institution until able to do so. The work of grading is strict and uniform in all the Farm, Orchard, Trades, Sciences, and Education. Price, 75 cents a year. Address A. A. Stewlast five years, to our certain knowledge. This

pupils; thus more than accomplishing all that is designed to be effected by a "high standard of

designed to be effected by a "high standard of admission." Hence, the student's continuance in the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform in as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

EXPENSES.

There are no charges whatever for enrollment, There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments. month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

### LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.-Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held particularly in the interest of the student will be held particularly in the interest of the student will be held particularly this laboration of this laboration at the practice. amount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. - When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour. cents an hour.

# AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make onehalf their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire suffi-cient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have repromise anything more. Hitherto we have re-frained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

#### RULES. 1. Behave as a true man or woman should, at all

times and in all places. 2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

# PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Depart-

#### CALENDAR.

Spring Term 1878.—Began Thursday, Jan. 3d, and will close Wednesday, May 22d.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

### TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

### LITERARY SOCIETIES.

ALPHA BETA. - Chartered, December 26th, 1870. Meets in College building every Friday at 2 P. M. Ladies admitted. New students cordially invited to attend. George L. Platt, President. MISS ESTELLE BOUTON, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. LEWIS A. SALTER, President.

TULLY SCOTT, Secretary.

### RAILROAD TIME-TABLE. KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going East...... 12:20 P. M.

Going West..... 4:10 P. M. FREIGHT ARRIVES.

Going East...... 2:55 P. M., and 10:30 P. M. Going West...... 6:20 A. M. Passengers with tickets are carried on any of

the above-named trains.

GEO. C. WILDER, Agent.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

S. Roberts, M. D.-Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Vocal Music.-Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reckoned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

**Dress-Making and Millinery.**—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26

The Farm Department of the Agricult-ural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the highest breeding. Address E, M. Shelton, Manhattan,

Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Manhattan Bank.—E. B. Purcell, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

Tathematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Board of Regents. S. M. WOOD, President, Elmdale.
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A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agriculness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in form. ble education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an educa-tion; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

# FARMER'S COURSE.

FOURTH YE'R
Spring. Fall.
<ol> <li>Practical Agriculture (advanced.)</li> <li>Geology, Mineralogy.</li> <li>Polit. Economy, Practical Law.</li> <li>Zoology.</li> <li>Agricul. Chemistry, Meteorology.</li> <li>Logic.</li> </ol>

# WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

# WOMAN'S COUPSE

	WOMAN'S	COURSE.	
FOURTH YE'R		SEC'ND YE'R	
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1004100	5004000	5574821	55455
Farm Economy, Special Hygiene Geology, Mineralogy. Polit'l Economy, Practical Lav Zoology. Phys'c'l Geography, Meteorolog Logic.	Botany, Entomology. Inorganic Chemistry. Industrial Drawing. Horticul., Landscape Gardening Organic, Household Chemistry. Household Economy.	Physiology. Rhetoric. Algebra. Algebra. English Literature. Physics. Industrial Drawing.	Drill in English. Drill in Arithmetic. Industrial Drawing. English Structure. Adv'd Arith., Book-keeping. U. S. History, Industrial Drawing

# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be

furnished in a Post-Graduate's Course. If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them as selected by the pupil or parent: one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

FOR FEMALE STUDENTS. Dress-making. Printing. Telegraphy. Scroll-sawing. Carving. Engraving.
Photography.
Instrumental Music.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

### DEPARTMENTS OF INSTRUCTION.

### DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE. Second Year: - General principles of breeding; Second Year:—General principles of breeding; history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of beed cores in a system of husbandry; the cultivahoed crops in a system of husbandry; the cultiva-tion of corn and roots; soils that need drainage; how to lay out a system of drains; house drain-

age; sewerage. Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; generaadvantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY.

Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

# DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and sys tematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practi-cal drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of prun-ing; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

# CHEMICAL DEPARTMENT.

PHYSICS This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their com-pounds, are next considered in succession as to their history, properties, manufacture, and espe-cially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboratory practice.

#### CHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

#### AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

#### METEOROLOGY.

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity; laws of storms; rain, snow and atmospheric elec tricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

#### MINERALOGY.

This includes the study of the laws of crystallog-raphy, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

#### HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composi-tion of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of

SPECIAL COURSES Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

# ENGLISH LANGUAGE.

Words are simply tools used to express ideas; and, since the vast majority of our communicaand, since the vast majority of our communica-tions are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machine we called lenintelligent in handling the machinery called lan-guage, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the stu-

#### DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill. Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of com-positions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and penman-

Text-books: Webster's Academic Dictionary; Lee

& Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter
the printing class, the printing-office being the work-shop of language.

# STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS.—The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the

topics included are:

Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech. Stems: Their derivation: their offices and prop

erties; their relation to other parts of words. Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems. Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought. Criticism: This constitutes a prominent part of

the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.
ELEMENTS OF SENTENCES.—The purpose in view

in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the resent of the royal forms and explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

# MATHEMATICAL DEPARTMENT.

not because they do not know why given operations are performed, but because they can neither add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops, construction of houses, sales of produce, and investment of capital, involve all the produce, and investment of capital, involve an the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING
Is a continuation of the above, having the same purpose and adopting such methods as the neces sities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

Algebra is included in the course as a preparation for the study of Surveying.

DRAWING. The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive feathling which can the tive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they classes make a far greater use of lines than they do of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Department

# PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach or within his ability to construct: within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

# PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the organeer is accordingly supplemented with of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical principles and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

# SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to woman.

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See

heading, "Farm Economy."

GARDENING is included in Practical Horticulture. See heading, "Landscape Gardening."

HOUSEHOLD CHEMISTRY. See heading, "House-

hold Chemistry." HOUSEHOLD ECONOMY

Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different. from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and affords every facility for drill in the art of cooking. Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

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#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law. those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

Teachers	1.13-	1.13
Professional education:		
Ministers	0.43	
Lawyers	0.55	
Doctors		1.71
Industrial education:		
In agriculture	59.13	
In manufacturing and mechanical	14.63	
In personal service	13.89	
In trade and transportation	9.51=	97.16
	10	00.00

# AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education. ENDOWMENT.

The endowment received from the United State Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an COURSE OF STUDY. ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving and music.

### The Importance of the Mechanic Arts.

An Oration delivered by Charles S. McConnell, a member of the graduating class of the Kansas State Agricultural College, Tuesday evening, May 21st, 1878.]

Man as a rational being is endowed by his Creator with two prerogatives. One is the control over matter and inferior animals, which is physical power: the other is the control over kindred mind, which is mental power. So that power over the material world is, practically speaking, a most important element in the social, intellectual and moral world. Mind at all times is the great mover; but encased as it is by matter, acting through material organs and treading a material earth, I do not know that there is anything but an abstract idea which is not dependent upon it; and even the capacity of the mind for thinking is affected by the condition of the material body.

This control over matter by the mind is principally effected through the medium of the mechanic arts. The natural powers of man are certainly great and wonderful, but they sink to nothing when compared with that force which accrues from the skilful use of tools, engines and other material agents. Man, unaided by artificial means, can lift but a few hundred-weight, and that for only a moment; with jack-screws, pulleys and windlasses he sets upon its base a shaft of solid granite a hundred feet high. The dome of St. Peter's is one hundred and twenty feet in diameter; its sides are twentytwo feet in thickness; it is held in the air at an elevation of three hundred and twenty feet; and it was raised by hands as feeble as these. The unaided power of the hand is insufficient to break the smallest fragment of marble in pieces, but by the aid of mechanical agents masses weighing thousands of tons are now cleft from the ledge. Three miles an hour, for long periods and with needed rest, are the extreme limit of the locomotive capacity of the strongest frame, and this on land. The arts step in, and by their application to the purposes of navigation man is driven night and day at the rate of eighteen miles an hour over the unfathomed ocean; and by other agents he flies over the land at the rate of sixty miles an hour, without moving a muscle.

Man's ability to convey his ideas to others by intelligible signs, which unaided by art was confined within the limits of oral communication, lies at the foundation of all our social improvement. The words of wisdom perished not merely with the sage by whom they were uttered, but with the very breath of air on which they were borne. Art came to the aid of the natural capacity; and after a long series of experiments, which passed through the stages of pictorial representation and the different methods of hieroglyphical writing, it devised a method of imprinting on a material substance, legible signs - not of things, but of sounds forming names of things; in other words, it invented the alphabet. With this simple invention, and other mechanical contriv-

of man was, I had almost said, created anew. Before the invention of the alphabet the voice of man in its utmost sweep could reach but a few thousands; after the invention he was able to place his thoughts on a roll of parchment and send them to every city and hamlet of the largest empire. Before this invention the mind of one country was separated from the mind of all other countries, and for the purposes of intercouse the races of man might as well not have existed; after its invention wisdom was endued with the gift of tongues, and spoke by her interpreters to all the nations. Before it nothing but a fading tradition, constantly becoming fainter, could be preserved by memory of all that was spoken or acted by the greatest of men. After this invention thought was imperishable; it sprung to an earthly immortality; it seized the new-found instruments of record and commemoration, and parting from the body as this carries the vocal organs into the dust, it carved on the very grave-stone, "The spirit of man shall live forever."

We thus see what man was before the discovery of these appliances, and clearly see that the mechanic arts are the great instruments of civilization. Omitting the successive steps in their development, let us take as an illustration the agents employed in the manufacture of clothing. The savage, when he has killed a buffalo and dried the skin, prepares it by manual labor; but he has consumed several weeks and has made but one garment. The civilized man has contrived a variety of machines which chiefly perform the work required. He clips the matted wool from the fleece, a knotted, tangled mass of threads which would seem to defy all skill and industry. How long will it take the busiest pair of fingers to piece those fibres together, end to end; lay them side by side, so as to convert powerful friends. them into a covering excluding wet and cold? The savage, in selecting the skin, at first seems to have made the wiser choice: nature has already done the spinning and weaving to his hand. But stop a moment. There is a group of iron-fingered artificers in yonder mill who will show you a wonder. With a rapidity scarcely conceivable they convert this tangled heap into a uniform mass; draw out its short, curly fibres into long, even threads; twist them; curiously cross them over and under with magical dexterity till they form a compact fabric, impervious, beautiful, and in quantity sufficient to clothe a family, with less labor than the savage requires to dress a single

The men who in the infancy of the arts invented the plow, the saw or the plane, the grindstone, the vise or hand-mill, and those who in later years have contributed to the wonderful perfection of modern machinery, are entitled to rank high among the benefactors of mankind as the heroes of civilization. It is not the fabulous wand of the enchanter, it is the weaver's loom, the tripcall thousands and tens of thousands into

Consider, if you please, the influence on the world of the invention of the watch. In those critical junctures when affairs of the weightiest import hang upon the issues ofan hour, who can calculate how often prudence and forecast have triumphed over blind chance by being able to measure time? Is it not something more than mere mechanism which waits with us by the sick-bed of some dear one through the solitude of night, and enables us to count in the slackening pulse nature's trembling steps, and to administer the prescribed remedy at the critical moment? Man should learn from this half-rational machine to imitate that sublime precision which leads the earth, after a circuit of five hundred millions of miles, back to the solstice at the appointed moment without the loss of one second, no not the millionth part of a second during countless ages of revolutions. What a miracle of art, that man can cause a few brass wheels and a little piece of elastic steel to out-calculate himself! What a miracle that he can put within this little machine a spirit that measures the flight of time with greater accuracy than can the profoundest philosopher; which lives and acts when death has palsied both the hand of the maker and the mind of the contriver.

An eminent writer says: "All art is a creation of the mind of man — an essence of infinite capacity for improvement. And it is the nature of every intelligence endowed with such a capacity to be at all times, in respect to the future, in a state of hopeful infancy."

Let us say in conclusion, Mechanics of America, PERSEVERE; respect your calling and respect yourselves! Civilization and human progress have no firmer or more

THE Kansas Pacific Railroad has sold 127,272 acres of land this year, against 31,-624 disposed of last year. The year is not quite half gone yet, and it is more than probable that they will sell over 200,000 acres of land during the year. This land has been mainly sold upon the strength of the good crops raised last year. With the present prospect of good crops for this year, and the diligent advertisement of the same, the company next year will at least sell double the amount of land they sold this year, if they have that amount on hand. Kansas is filling up at this rate all over the State, and if the hard times continue in the East, will be able to show a population of 1,500,000 in 1880.—Manhattan Enterprise.

THE milling industry of this country is said to rank next to that of iron. The number of mills is over 25,000, affording employment for over 60,000 men, whose annual wages are about \$20,000,000, and turning out yearly about 50,000,000 barrels of flour, of which 4,000,000 are exported to foreign countries.

THE Wamego Tribune says that Hon. Welcome Wells, of Pottawatomie county, has a forty-acre orchard that gave him a revenue of \$4,000 in 1876, and \$5,000 in 1877. Mr. Wells assures the *Tribune* that in his crop of over 4,000 bushels of apples in ances by which it is employed, the ability hammer, and the rushing engine, which 1876, not a worm-eaten specimen was found.

SATURDAY, JUNE 29, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

EDUCATORS are apt to forget that the bulk of the farmer's work requires manual or mechanical force. He deals chiefly with matter. Probably more pounds of dead weight are annually lifted on a given farm than in any shop employing the same capital. In plowing one hundred acres six inches deep, 80,600 cubic yards of earth must be moved; then follows the work of harrowing, rolling, stirring, harvesting, housing, cleaning and marketing. If, on the first of January, each farmer were shown a mound to be leveled, equal in bulk, weight and solidity to that of the material which he must handle during the year, and which could be removed only by a force equal to that which he must use, many would despair of accomplishing the task at all, or at least of making a profit; and all would realize the imperative necessity for employing the best and cheapest power, for using the best tools, and for exercising the greatest skill in their use. The amount of work to be done would show why, in turning the soil, a spade is cheaper than a stick, though it costs more; why a plow is cheaper than a spade, and the strength of a horse and that of a man. It would equally show that dexterity in the use of tools is a deal cheaper than awkwardness, though its first cost be greater. No one doubts that the mechanic needs skill, or that his education should include the practice in the use of tools by which alone skill can be acquired Why, then, exclude from the education of a farmer a corresponding practice, since year by year he has a greater weight to lift, and tasks to perform equal in variety and exactness?

# The Kansas Editorial Excursion.

PUT IN BAY, Lake Erie, June 18th.

Dear Industrialist: - I do not intend to tell you anything about the beautiful city of Atchison, with its "seven hills;" nor how royally the people opened their hospitable doors and hearts to the Kansas editors and their wives. Not a word am I going to say of the way those Kansans, while en route through Illinois, patted themselves on the back because they lived in Kansas and not Illinois; particularly when they looked at the stunted corn struggling through those watery fields. Nor of our reception at Toledo, where everybody talked "wheat"winter wheat; and where at a late hour when the speech-making was over, a dozen or more of the party had a jolly time and went in search of "hunter's chickens," sometimes known in rural districts as "frogs." Nor will I tell you about the delightful ride from Toledo to Put in Bay, during which we caned our worthy President. John A. Martin. But I am going to tell you that of the very many pleasant places dotted through this glorious land of ours, Put in Bay Island is just one of the most charming! We have from time to time had a hungering and thirsting for the Atlantic Coast, that we might sniff the salt air, renew the "inner man" with the delicious fish it affords; but far more than all else that we might enjoy a sail, and lying with our face upturned drink in the sunlight, and as we dreamily floated over the water forget everything but the present; -

This is not the ocean it is true, but a Lake Erie, forty miles from Toledo, with troduced mainly for the benefit of the as- and that practice alone makes perfect.

and here it all is!!

daily boats to and from Sandusky, Cleveland, and Detroit. It is the third largest in size of this group of islands, and has about nine hundred inhabitants. The Put in Bay House is kept by Messrs. Sweny, West & Shepherd, each of whom did all in his power to make the sojourn of the Kansas excursionists a never-to-be-forgotten pleasure. The hotel will comfortably accommodate one thousand guests, has airy rooms, good beds, and is in every respect first-class. It also has an unexceptional cuisine, with good waiters, who know just how Kansas editors can eat. Our party arrived here on Friday, the 15th, and left on the 17th for Niagara. After making a short visit there, they will return to Kansas by way of St. Louis, from which point they will take steamer to Hannibal. Having "done" Niagara very thoroughly two years ago, the "other half" said he wanted to remain at Put in Bay.

We were sorry to say good-bye to the many new and old friends we have made on this trip; and after accompanying them to the steamer last Sabbath afternoon and waving the last farewells, we suddenly realized we were going to be the sole representatives left here of the Kansas Editorial Association. Monday morning we began our first real loafing. The weather is delightful, quite cool enough for comfort; and the islands, covered with their fresh, green verdure, are charming spots on which to spend an hour when tired of sailing. "Gibralter," once owned by Jay Cooke as a summer residence, is about half a mile distant from Put in Bay Island, and is a great resort for all visitors. It is only five acres in extent, rises forty feet above the water, and is thickly covered with large trees, - a delightfully cool resting-place, even during the warmest day. The residence is of limestone, and peeps out among the trees very attractively. We doubt not there are many weary clergymen all over these United States who have pleasant memories of it, as in by-gone days it was the custom of the owner to invite them to spend a few weeks each season on the island. Now the only occupant of the residence is Owen Brown, a son of John Brown, whose Kansas soul still "goes marching on." We have had several pleasant interviews with Mr. Brown, and he seemed greatly flattered by the visits of his Kansas friends.

But the sailing is too pleasant to be lost the days here will be few at best. We like better to talk than to write, anyhow, so good-bye until we shake hands with you a week or so hence.

### Professional and Industrial Education.

It is well to remember the influences which have brought what is commonly regarded as the standard education into its present shape. All of the best American colleges provide about the same course of study. Where did they get it? Originally from England, with some modifications of details. But where did the English institutions obtain it? Nowhere. It grew. Two necessities governed its growth: First, the need for certain kinds of knowledge which men wished to use; and second, the need for training those faculties by which that knowledge was applied. It is evident that the classics first obtained their place in the curriculum simply because those languages contained information that was useful to clergymen, histories and precedents indispensable to lawyers, and theories deemed valuable to physicians. The notion that the classics afford better mental discipline than beautiful lake that answers our purpose just do other studies, was an afterthought, not as well. Put in Bay Island is situated on an original purpose. Mathematics was in-

tronomer, and not of the merchant; any crumbs picked up by the latter were dropped by accident. Physiological studies were gradually provided for the embryonic physician, and political economy for the heir to a seat in the House of Lords. In later days the natural and physical sciences have been included, but chiefly for the benefit of scientists. We can thus see not only why the standard curriculum has its present proportions, but also that it is admirably adapted to impart just the knowledge that will be most useful to professional men in after life.

And now, what faculties or organs does it aim to train - the mental or the physical? Those of the mind. Why? Is it because mental discipline is more valuable than physical training? Is it not because the theologian or lawyer who seeks to apply the truths of reason, only uses his mental powers in making the application? In such work it is wholly immaterial whether his feet be trained, or for that matter whether he have feet. His mind acts independently, save as it depends upon the body. If in later days Shakespeare had lost the use of every organ except the tongue, he could nevertheless have given to the world those masteypieces which will endure long after cathedrals have crumbled. The mind is the only power which can grasp truths, handle inferences, construct arguments, or shape policies, even though these guide nations to the grandest victories. The blind Milton erected a palace that will challenge the admiration of centuries; but it was built of ideas, not granite; framed and bolted with thought; glorified by resplendent ge-

From the nature of the case, a professional education does not require any discipline of the physical organs; and the fact that when a particular skill is needed in a profession, as that of the hand by the surgeon, this drill is given, only strengthens the general proposition that the standard education of to-day is chiefly designed for the benefit of the professional classes. But when we seek to apply the truths of science to matter, physical as well as mental ability becomes essential. Just as the finger cannot touch thought, so thought cannot touch stone. The will of the mind can only be carried into effect by the body. And for the very reason that the professional classes required mental discipline, the industrial classes require manual training as well; for these are the men whose work is with soils and wood; rocks, ores and metals; winds, waves steam and lightning; and that work can only be done by the use of the physical organs.

This distinction ought never to be forgotten. The use which is to be made of any science should determine the form and extent of its presentation to the student, the faculties or organs to be trained, and the relative strength or dexterity required. If that use is professional, adapt the studies thereto and train only the mind; but if it is industrial, reapportion the studies and train the physical organs by which they are in-dustrially applied. The degree of this dis-cipline or drill must be equal to the mental or manual skill, or both, required by the vocation. What assiduous study by the student is in school, equally assiduous labor is in the field or shop; for skill is the result of much "actual doing." Only at the handles of the moving plow can the boy become a plowman. The student of carpentry may have mentally learned the scientific truth that a straight line is the shortest distance from one point to another; but when he tries to rip a straight line through a board he discovers that his eye and hand must learn the same truth, that it is far more difficult to educate the body than the mind,

Educational Calendar. - A spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W. Martin, Topeka.

Habits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

Special for Woman.—Special lectures on Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Ked-zie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

gricultural College Lands. - These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, ayable annually. The lands are all choice selecpayable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. Fo particulars, maps and descriptions, address L. R. Eiliott, Agent, Manhattan, Kas.

A Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "PRENTIS IN EUROPE;" "PIKE OF PIKE'S PEAK, the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "THE WORLD A SCHOOL," the annual address before the State Agricultural College, delivered May 25, 1875. One volume 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher. Topeka, Kansas.

Printing !- Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printng, the weekly publication of the Industrialist by the Department furnishes advanced students the requisite drill in newspaper work.

Kansas Text-Book, for teachers and OLOGY, for the Schools of Kansas, by Prof. Wm. K. Kedzie, M. S., of the Kansas State Agricultural

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact." In two parts: Part First-Elementary Geology

Part Second — Origin and Formation of Soils.

Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan,

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a Centennial award for quality of work, work, by Kansas mechanics, at this establishment. Pronounced "faultless." this Kansas er's series of School Records, made to comply with Kansas laws by a Kansas author and Kansas publisher. The best School Officers' Records in the market.— Felter's Elements of Book-keeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.— The Annals of Kansas, a marvellous history of Kansas, written and printed in Kansas.— The Educational Calendar, a printed in Kansas.— The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for twenty-five cents per annum.—The best Railroad, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment for Kansas equal to the best in America. ment for Kansas equal to the best in America.

Address. GEO. W. MARTIN, Topeka, Kas.

The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixty-four pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case,

Kansas City, Mo.
This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some dc., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific subjects. subjects.

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the Review and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

33-4w

. SATURDAY, JUNE 29, 1878.

Amos Wilson is reported as having been very

George L. Platt's oration, entitled "The Self-Thinking Laborer," will appear next week.

The "Slim Jim" and "Fat" base-ball clubs are to play a match game in Manhattan on the Fourth.

Mrs. Anderson passed through Manhattan to Junction City on Thursday evening, and the President went up yesterday evening.

Prof. Platt and part of his family went up to Onaga to-day to see his son George. The Professor will preach in Onaga to-morrow.

Miss Emma Hoyt, in company with her cousin, Nellie Elliott, has gone to New York to visit an uncle. L. R. Elliott accompanied them to St. Louis.

The Toledo Bee publishes entire the sermon delivered by President Anderson before the Kansas Editorial Association, at Put in Bay, Lake Erie, June 16th.

John Mann returned last Wednesday from a visit to his home in Rice county. Although he greatly enjoyed the trip, he was nevertheless glad to get back to Manhattan.

Jasper Howard has finished his school in Shawnee county and returned home. He must have given satisfaction, as he has been teaching in the same place for over a year.

Mr. Walters has nicely repainted, striped and varnished A. A. Stewart's buggy, and it looks like a bran new vehicle. He has another job of the same kind to do for Capt. Todd.

Will Sikes has responded to our request and sent in an interesting letter. We are expecting one from C. O. Smith, and hereby suggest that Thos. R. Moore also drop us a few lines.

The Board of Regents will meet at the Adams House, in Manhattan, on Tuesday evening, July 9th. This is the regular quarterly meeting, and all accounts against the College will be audited at this time.

A number of Manhattanites will attend the great celebration at Wamego on the Fourth. Hon. S. A. Cobb will orate, the Manhattan band will furnish music, and a new six-pounder will do the "heavy" work of the day.

County Superintendent Billings announces that the Riley County Normal Institute will be held in the new school building, in Manhattan, commencing Monday, August 5th. Professors J. H. Lee, J. E. Platt and D. E. Lantz have been employed as

George Platt and Will Sikes have organized a Young People's Prayer Alliance at Onaga, Pottawatomic county, the new town at the terminus of the narrow-gauge railroad. We are glad to see these young men so active in Christian labor, and trust that their efforts may be greatly blessed. The vacation affords students a splendid opportunity of doing work for the Master in their respective localities.

mirable lecture on "Kansas." This one is taken from Tuesday's proceedings of the State Teachers' Association, in the Atchison Champion:

The evening session was devoted to the lecture of Jno. A. Anderson, President of the State Agricultural College, upon that prolific and favorite subject, "Kansas," and select readings by Miss Bracke, of Leavenworth.

President Anderson's lecture was an ovation to that well-known orator that was as complimentary as it was merited. Every seat in Corinthian Hall was filled, and even standing room, was unavailable, notwithstanding it was one of the most sultry evenings of the summer. We confess to a degree of timidity in alluding to this lecture, a feeling that does not often pervade the breast of the average newspaper man. But this was so grand in eloquence and sentiment that the array of adjectives which nas done us such good service in the past, fail to do their duty now. We have never seen so well pleased an audience in Corinthian Hall. Seated in the center of the Hall, we heard the unstinted praises coming in from every side, and they were extravagant in their homage. One enthusiastic young lady who sat near us, as the as it was merited. Every seat in Corinthian Hall they were extravagant in their nomage. One en-thusiastic young lady who sat near us, as the speaker rounded up one of his perorations, ex-claimed, with her heart and mind bubbling over with admiration: "Ain't it glorious?" It was an effort that will be remembered a life-time by those who heard it; and it made the heart of every Kansan in the hearing of his voice swell with pride, as the speaker illustrated the greatest of all States in the grand constellation of the American Union.

# STUDENTS' CORRESPONDENCE.

VIENNA, Kas., June 26th, 1878.

Editor Industrialist: - I am much pleased with your proposed "Students' Correspondence" column, as by it we students may learn of each other's welfare; and it is with pleasure I accept your polite invitation to write for it.

My home is situated in the Red Vermillion valley, and is three miles from Onaga, the present terminus of Kansas Central Railroad. This latter place has been built within six months, and already boasts of some half dozen business houses and two large hotels; but we are sorry to say nearly every place of business in the town sells intoxicating drinks. The place is supplied with the usual Sunday school and preaching in the forenoon of each Sabbath, and a Young People's Prayer Alliance has been recently started which meets in the afternoon.

George Platt is stopping here this summer, and is successfully teaching a class of eighteen in instrumental music. I am unable to say whether I shall return and finish the course at the College or not, but would like to very much. Crops of all kinds are very good here. Wheat is much better than it has been for several years, but this country is not noted for its extensive wheat fields; it is a stock-raising county, and as such is probably one of the best in the State. I notice we are a little behind your correspondent from Rice county in harvesting, as wheat harvest has hardly commenced in this vicinity.

We shall have a large crop of peaches on our place this season, and hereby tender any of our College friends an invitation to visit this place and test their quality. Hoping through this medium to hear from many of the students, especially the soon-to-be "Senior Class," we close our WILL SIKES.

#### NATIONALIST ITEMS.

The new school desk drops and locks the books up. Mrs. Cripps is living in the house formerly occu-pied by Prof. Ward, on College Hill.

Mr. Todd's house has crept up to the roof. It is a large and very handsome stone building.

H. N. Williams, of Ashland, brought us some blackberries last week, six of which weighed an ounce.

Miss Allie Stewart, who graduated at Oberlin with such marked success, a few weeks since, has returned home for good, we hear.

Mr. Purcell, wife, son and Miss Ritchie started overland to Leavenworth this week. Part of the party leave the carriage at Onaga and go by rail. We regret to learn that Hon. H. P. Dow, Deputy

U. S. Collector, will be compelled to spend the most of his time in Junction City, as the office cannot be removed to this place at present.

Postmaster Pillsbury informs us that hereafter we will have two mails a day from the east. In addition to the regular afternoon mail, the freight that arrives here about nine A. M. will bring the mails that reach Kansas City the previous even-

# ENTERPRISE ITEMS.

The average price of harvest hands in this State is one dollar and fifty cents per day.

The street commissioner is macadamizing Second street, between Beverly's and Purcell's stores,—a much needed improvement.

Mr. Armstrong, of St. George, sent up a ripe peach on Monday. It was a seedling of the Early Hale, and was ripe on the 20th. This is the earli-est ripening of this fruit we have any record of.

Jay Gould, Pres't Dillon, of the U. P. R. R., Sup't Oakes, and a number of other big guns, passed over the K. P. one day last week. The road has passed into Jay Gould's hands, and they were on a tour of inspection.

We are glad to see the correspondents of the Nationalist stirred upon the question of taxation of fences. The eyes of the people are beginning to open in reference to the expense of unnecessary fences. Not only the first cost, but the continued tax and outlay for repairs and renewals is a bur-

We take advantage of President Anderson's absence and insert below one of the several complimentary notices which he have seen of his advantage of President Anderson's rapid progress of harvesting, and the crop will be heavy. Spring wheat, which looked badly a few days ago, is coming out and bids fair to make an excellent crop in most localities. Corn is growing rapidly, and the farmers are busy keeping the weeds in subjection.

The new school-house will be completed for occupancy some time in the fall. It is going to be the most complete and finest \$12,000 building ever put up in this section of the State. A man who said he was a master builder, stopping here a few days, said there must be a steal in it somewhere, as he did not believe it could be erected for less than 75,000 dollars. This comes of having an effi-cient school board, with the interests of the district in view. Everything is well and substantially done, and when finished will be a structure both useful and ornamental to the city—and the cause of much profanity to the contractors.

# DIRECTIONS TO APPLICANTS.

# TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to variety series in definition of the started and the started are started at the started at

will be unable to retain position if admitted.
Publis will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as possible.

GRADES. Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent art, Manhattan.

THE INDUSTRIALIST, a weekly journal edited by the Printing Department, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Education. Price, 75 cents a year. Address A. A. Stew-used for sifting out incompetent and indolent art, Manhattan.

pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in the College wholly depends upon his own action. The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of t e time expended at College; and, in order thereto, he must do a full day's work with order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

#### RELIGIOUS

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

EXPENSES. There are no charges whatever for enrollment, There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there are "contingen fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term 'contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male stu-dents taking either of these are charged \$1 per month for use of instruments.

month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianes or organs. the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

#### LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be resid for by the poster benefited. paid for by the party benefited.

Educational Labor .- Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. - When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

# AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make onehalf their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

# RULES.

1. Behave as a true man or woman should, at all times and in all places. 2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

# PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

Spring Term 1878.—Began Thursday, Jan. 3d, and will close Wednesday, May 22d.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

### TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after change for enrollment. after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

# LITERARY SOCIETIES.

ALPHA BETA.— Chartered, December 26th, 1870.

Meets in College building every Friday at 2 P. M.
Ladies admitted. New students cordially invited to attend.

GEORGE L. PLATT, President. MISS ESTELLE BOUTON, Secretary.

Webster.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. Lewis A. Salter, President.

TULLY SCOTT, Secretary.

#### RAILROAD TIME-TABLE.

### KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going East...... 12: 20 P. M. Going West..... 4:10 P. M.

FREIGHT ARRIVES. Going East...... 2:55 P. M., and 10:30 P. M. Going West...... 6:20 A. M.

Passengers with the above-named trains.

GEO. C. WILDER, Agent. Passengers with tickets are carried on any of

five line instruments, and daily instruction and drill by an experienced operator.

S. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reckoned as an "industrial." mechanical Department.—Regular in-

struction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

**Dress-Making and Millinery.**—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher. drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the highest breeding. Address E, M. Shelton, Manhattan,

Farming for Profit.—Special courses in Kansas Practical Agriculture. Simple Tilage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

reglish Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer nandles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his mener. Sold at the publisher's price. \$1.25 by money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Manhattan Bank.—E. B. Purcell; Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

Mathematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

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W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its tics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION. Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematics. language as a tool, and of figures and lines as mathlanguage as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

# FARMER'S COURSE.

	T. TITOTITIZE O	000200	
FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology. 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Practical Geometry. 4. Horticul., Landscape Gardening. 5. Organic, Analytical Chemistry. 6. Practical Surveying.	<ol> <li>Physiology.</li> <li>Rhetoric.</li> <li>Algebra.</li> <li>Practical Agricul. (elementary).</li> <li>Physics.</li> <li>Industrial Drawing.</li> </ol>	<ol> <li>Drill in English.</li> <li>Drill in Arithmetic.</li> <li>Industrial Drawing.</li> <li>English Structure.</li> <li>Adv'd Arithmetic, Book-keeping.</li> <li>U.S. History, Industrial Drawing.</li> </ol>

WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

# WOMAN'S COURSE.

OURTH YE'R 7	HIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
pring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Farm I 2. Geolog 3. Polit'l 4. Zoolog 5. Phys'c 6. Logic.	1. Botany, E 2. Inorganic 3. Industrial 4. Horticul., 5. Organic, I	1. Physiology 2. Rhetoric. 2. Rhetoric. 3. Algebra. 4. English Lit 5. Physics. 6. Industrial	1. Drill in 2. Drill in 3. Industr 4. English 5. Adv'd 6. U.S. Hi
de act	, Entomology. nic Chemistry. rial Drawing. ul., Landscape c, Household C	Physiology. Rhetoric. Algebra. English Literature. Physics. Industrial Drawing.	Arithmetic. Arithmetic. ial Drawing. Structure. Arith., Book-keep
pecial Hygiens gy. Practical Lav y, Meteorolog	Gardening Chemistry.		keeping. ial Drawing

MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has

to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS. Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent: FOR FEMALE STUDENTS.

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

Telegraphy.
Scroll-sawing.
Carving.
Engraving.
Photography.
Instrumental Music. Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

Dress-making. Printing.

# DEPARTMENTS OF INSTRUCTION.

#### DEPARTMENT OF AGRICULTURE. PRACTICAL AGRICULTURE.

Second Year:—General principles of breeding; history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the play upon soil and subsoil; principles of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and restricted that the contraction of corn and restricted that the corn and restrict tion of corn and roots; soils that need drainage how to lay out; a system of drains; house drain-

how to lay out, a system of drains; house drainage; sewerage.

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; generadvantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feedmanures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY. Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems: general process of butterlow" setting systems; general process of butter-making; packing and preserving butter.

DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and sys-tematic, with a constant attention to the practical tematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practical drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and consequents of grounds. ornamental grounds.

ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and form pursuant modes of commercial and form pursuant. plants; improvement of varieties; management of commercial and farm nursery; modes of pruning; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

# CHEMICAL DEPARTMENT.

PHYSICS This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book, Ganot

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to their history, properties, manufacture, and especially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboraCHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual. Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY.

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity; laws of storms; rain, snow and atmospheric elec tricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallog-raphy, with the properties, forms and uses of the principal minerals of the United States. Blow-pipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composition of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of

SPECIAL COURSES Are constantly in progress in Assaying, Pharma ceutical Chemistry and Photography.

ENGLISH LANGUAGE.

Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in headling the machinery called langer. intelligent in handling the machinery called lan-guage, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the student

DRILL IN ENGLISH. "As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics:

Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of com-positions printed as written; proof reading; gram-matical construction; superfluous words and clauses; drill in reading, speaking and penman-

ship.
Text-books: Webster's Academic Dictionary; Lee \*\*Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.

Pupils deficient in spelling, etc., should enter the printing class, the printing-office being the work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS.—The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the

topics included are: Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech. Stems: Their derivation; their offices and prop

erties; their relation to other parts of words.

Stems: Their derivation; their offices and properties; their relation to other parts of words.

Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems.

Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Oriticism: This constitutes a prominent part of the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

Elements of Sentences.—The purpose in view in studying this subject is not to traverse the ground gone over in the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering

fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence. eral elements making up a sentence.

MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given opera-tions are performed, but because they can nei-ther add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and DRILL IN ARITHMETIC. produce, and investment of capital, involve an the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the lation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult thing.

ARITHMETIC AND BOOK-KEEPING Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important art.

Algebra is included in the course as a preparation for the study of Surveying.

tion for the study of Surveying.

DRAWING.

The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Department.

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical principles and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite. level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such in hygienic matters as are valuable to

FARM ECONOMY considers those affairs of the

woman.

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

GARDENING is included in Practical Horticulture. See heading, "Landscape Gardening."

HOUSEHOLD CHEMISTRY. See heading, "Household Chemistry."

Follows Household Economy

Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlastingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry—and no more expensive.

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Address A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocain which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as

Normal education:		
Teachers	1.13==	1.13
Professional education:		
Ministers	0.43	
Lawyers		
Doctors	0.73 =	1.71
Industrial education:		
In agriculture	59.13	
In manufacturing and mechanical	14.63	
In personal service	13.89	
In trade and transportation	9.51=9	97.16
	10	90.00

AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricult-ural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distin-guished from a "professional" education. ENDOWMENT.

The endowment received from the United State Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to nual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte

LOCATION. It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricult-ural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy com munication with every quarter.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English land guage; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thor-ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mateorology, Agrialtural Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dress-making, printing, telegraphy, carving, engraving and music

### The Self-Thinking Laborer.

[An Oration delivered by George L. Platt, a mem-ber of the graduating class of the Kansas State Agricultural College, Tuesday evening, May 21st,

Man lives to toil and toils to live. And as he ascends the gentle slope of life at easy work, or slowly climbs the rocky steep by hardest labor, he feels the force of conscience' voice. It tells him, Here is the way; it tells him, There is the danger; and wisdom says, Do as you think is right, obey not others' passions and opinions but regulate your actions temperately by conscience' dictate. An infinite Creator has given man a mind, and for an end. The product of that mind is thought, and thought makes purpose. If intellect is given and with it the regulator - conscience, why should the possessor depend on others for the product thought? Why run to the neighbors to borrow coals when just a little search will reveal a bed of coals beneath the ashes on the hearth?

Observation informs the industrious man that the exercise of common sense and his own reasoning powers, will give him a dignity on the farm and in the shop that commands the respect of his fellow-men; and his high position as a workman will not be lost until he performs his work in accordance with the conflicting wishes and judgments of others.

To all minds, the keenest, strongest and grandest, as well as the feeble, it is far more easy to imitate than to invent. The student may flatter himself with the idea that the dictum of Aristotle is so clear that he could have easily made it himself; but this student would never have produced the dictum. so simple yet comprehending so much, by the hard study of a long life without great geometry that the hardest demonstrations are comparatively easy, but how different is theorem to prove by an original demonstration. He who perfects any science must be a profound thinker, and by a diligent use of his investigating powers add new discoveries to those already existing; thus making the science, as the numerous collections of many years make up the cabinet. It is true that many discoveries have been made by investigators who failed to perceive the cause of the results they obtained, but attributed it to some accidental arrangement of circumstances; yet the men who have been great in art or science, who have managed the farm successfully, who have advanced agricultural art, who have written works of brilliant thought, who have composed the gems of song, have been the selfthinking men, who have not searched the minds of others for the purpose of stealing ideas and passing them off as original work.

The one grand desire of the inventor is to make something that no one else has made, and to do something for humanity that never

fellow-men; and as the mirror enables the eye to see its own color, so the public enables the toiler to see the value of his

The mind of man from infancy to old age turns toward the new. The child with his toys prefers those that were presented last to the old ones, although these may be the most attractive. And how often from the ladies do you hear the remark that certain styles are out of date. The farmer is not satisfied with his lands, and desires a change of grains and stock, employing the new kinds of both. The observer of two pictures, one of Washington and the other of the beautiful scenery of some recently explored land, will turn with the greatest interest to the latter because it is new. Keeping this in mind, the thinker, be his occupation what it may, can put the result of his labor ahead of all imitations - no matter how perfect - of the favorite compositions of art.

And shall the worker halt because there is something in his production that stands out so clearly odd and different in nature from the rest? Which is the most pleasant to behold, the level, monotonous plain, or the grandly looming peak, with here and there a massive crag jutting out and seeming almost to lose its hold upon the native cliff, giving us the feeling of sublimity by fear that it will fall, crashing and plunging into the depths below; and here a waterfall and there a cosy nook, all veiled by nature's foliage, giving varied shades and brilliant tints into which we instinctively look to see some fairy form, for in no fitter place could fairy dwell? Certainly it is the unusual features of the scene that create its charms. So are the characteristic portions of the thought. The scholar fancies as he studies laborer's work, for they give the feeling of something strange and new; and he will gain the more as he develops this original his notion when the teacher gives him a power in the right direction, for it is this which adds beauty and worth to his work as well as dignity to his labor. The worker who does his own thinking always possesses a good share of intellect in reserve which is not displayed on all occasions, but which the keen scrutinizer must search after. This reserve force is like beautiful grounds behind a mansion: the visitor views with delight all the scenery that is presented in the foreground, then as he deviates into the retiring drive is struck with the marvelous beauty of the landscape lying beyond and out of general view. But let the whole beauty be placed before the building, and one is unpleasantly surprised to find that he has exhausted the scene and that all behind is a dreary waste. The feeling of dissatisfaction is irresistible. The man without power in reserve is, like the bare background, devoid of a most valuable and pleasing future; but his companion is struck with the great influence which the man of vigorous thought exhibits in his daily toil. has been done. He seeks to put the product | And he wonders at the dignity and force of of his thought in such a form as to make it the deep thinker, yet in a vast majority of of the greatest advantage and good to his instances never supposes that he himself Prairie Farmer.

may occupy the same position if he will equally use his own mind and allow it unlimited scope of action.

Every self-thinker has within himself a respect for the powers of the human mind, and realizes the value of a brain which enables the possessor to do deeds that surprise all, even himself. How many thousands of men there are who never know the value of original thought to the laborer, and therefore go on in their work of seeking advice and guidance from others who know not so much of their business as themselves. In this way they are involved in the greatest difficulty, for each opinion is entirely different from all the rest and none of them satisfy the laborer's unsettled desires; but he fancies that all these conflicting judgments which distract him are the unavoidable trials of his life, which he must bear without a murmur.

And when our thoughts, deep and solemn, are turned to the vast eternity, so near, so incomprehensible, and giving us such longings to understand the nature of our future state, how the soul goes out in reverence to the great Creator of all. And as the person charged with electricity transmits the fluid by the finger to another, so in an infinite way God with loving finger touched the mind of man and made it capable of that work of designing; and accompanying it came the feeling, like unto his own, that all God's works are good. And shall not man, as he reaches toward the infinite and draws nearer to death — that second birth of the soul, engage his whole powers in preparing that intellect for that endless existence where unreserved thought shall be forever

THE birds are migrating westward, with the march of civilization and trees. It is noted, in the journals of the southwest part of this State, that birds of several species, never seen there a year or so ago, are now uite numerous. The Champion's theory that great climatic changes go on, from year to year, as civilization pushes out into the plains, is reinforced by this circumstance.—Champion.

THE Newton Kansan gives an account of an extensive orchard farm situated two miles east and twelve miles south of Newton, in Sedgwick county, belonging to Mr. Wm. McCrackney. He has now fifty thousand thrifty, growing fruit trees, thirty thousand of which are bearing fruit, of which ten thousand peach trees are loaded to their apparent utmost capacity. His plan is to distribute the different varieties of trees promiscuously throughout the orchard, believing that they grow and bear as well, and besides acquire a better form than if classified in rows.

A FRUIT-GROWER near Delaware City cleared last year over \$20,000 from 160 acres; and another at Middleton, Delaware, had 480 acres in peaches last year, and was offered \$35,000 for the crop before picking, which he refused. He cleared \$41,000. A noted peach farm in Maryland is the "Peach Blossom," in Kent county, containing over 600 acres, two-thirds of which last year was covered with bearing trees. The owner sold peaches enough from it to a New York house to amount to \$50,000.—

SATURDAY, JULY 6, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

#### The Tramp Question.

Every one will admit that a sermon, although good under circumstances, will never feed a hungry stomach. We cannot dispose of a poor creature by lecturing him. Even in making him pound stones in the streets a few days, we do neither change himself nor his condition. It also seems perfectly natural that if a hungry stomach cannot get satisfaction legally, it will try its level best to get it illegally. The world owes every one a living. A great number of those that belong to the tramp brotherhood could do a little better if they would, but is it not human again to lose courage after years of unsuccessful battle?

To remedy the present calamity, we must study its causes, and if we expect to be successful, we must go to the root of the evil; we must remodel the whole inner life of our nation, or the fate of our European sister nations will be ours. We are sitting under the sword of Damocles. The faster we acquire wealth, the huger will be the cause of complaint-the uneven distribution. To effect a more satisfactory division of the products of labor and to increase these products for the benefit of the laborer, can be the only solution of the problem.

For the American laborer, whether in the work-shop, in the counting-house, or on the farm, the conditions of life have within our time undergone a radical change; and of such a nature that the laborer must now receive a far better education than he required one or two generations ago. Otherwise he cannot advance himself or even maintain his old ranks. A simple glance at the following points will strikingly distinguish his present situation from his past.

The labor-saving implements now employed in agriculture, enabling one man to do the work of four or six of a generation ago, do not increase the products of the soil materially, except perhaps on the extreme western frontier, but reduce the number of laborers engaged in that occupation. It is to the use of such labor-saving implements on the farm that we largely attribute the greater relative growth of American cities compared with the increase of the agricultural population. From the shops of some of our manufacturers, laborers are also driven on account of the employment of similar laborsaving machinery. All the routine work is to-day. And these causes have not even yet reached their climax of influence. Certainly the next twenty-five years will facilitate farming, manufacturing and transporting another twenty-five per cent.

This increasing multitude of laborers that are crowded out of their original vocations cannot find profitable employment in the cities as rude workmen. There is a fixed limit to the demand for rude products. All these hands will be able to find profitable employment only as skilled artisans, as the demand for the products of skilled and artistic labor is not limited by the number of consumers,—as, for example, the demand for articles of food, - but only by the taste and the ability of the consumer to purchase. Hundreds of millions of dollars' worth of articles, involving a knowledge of the principles of industrial art, could be produced annually in the United States to satisfy the home demand only; and if we could produce more of them, they would find a ready and lower tramping if he doesn't .- J. D. sale elsewhere. The United States send Walters.

abroad each and every year over one hundred millions of dollars for such products of industrial art. We yet import the greatest bulk of our jewelry, silks, fancy articles, paintings, statuary, lithographies, watches, china-ware, buttons, musical instruments, paper articles, etc. Publishing houses frequently have to send to Europe for engravers and lithographers competent to do good work. Numbers of cases are also known to us, where eastern architects have been compelled to import stone-cutters and frescopainters at great cost, to have some elaborate work executed. And this we do, while our laborers are starving or doing routine work at often less than one dollar a day,while the country is swarming with tramps, and hungry communists are arming.

True, we can show a very favorable annual balance of exports over imports. By investigating the government reports, however, we will at once observe that the list of exports includes a number of articles representing large amounts of money which are of a rough, coarse character, and with which the art element is but slightly connected. These articles are freight cars, agricultural implements, coarse cotton prints, bulky machinery, sewing machines, etc. While in nearly all of the imported articles the advantages of knowledge and skill of the highest degree are directly and pointedly

Our leading papers often speak with eagerness of a coming conquest in the market of the world; and are vociferous in the glorification of our energy, backbone, grit and wit. When the youthfulness of national life is considered, we have undoubtedly done much; but as long as our exports con sist chiefly of raw materials and rough implements, we should rather glorify the richness of our soil and the fabulous treasures of our mountains. What we should contend for as a community of manufacturers are such products where the raw materials amount to little and the labor to very much, a point well realized by European nations.

Lack of space prevents us from dwelling longer upon this. We have pointed out what we believe to be the chief cause of the rapidly growing calamity. There are other causes: the evil of intemperance, extravagance, laziness, a roving inclination, etc. Yet the same antidote would counteract them all - a better and more practical education. We venture to say that out of ten tramps, nine would settle right down, work hard, and become good and productive citiprospect of success. If we are wrong, we done by the thousand-armed iron wonders of are greatly deceived in regard to human

> But a man who has never learned to draw, for instance, cannot open a lithographic establishment; he cannot become a silversmith, nor an engraver, nor a frescopainter, nor a modeler, nor a designer in a wall-paper or a calico factory. His chances to ever reach good wages as a stone-cutter, carpenter, cabinet-maker, watch-maker, etc., are very small. It requires a technical education to conduct or even to work in a soap, glue, glass, extract or medicine factory. An uneducated man cannot make musical instruments. Even the knowledge of a dead language will not suffice for him. Plato's philosophy will not save him, either. The lack of an "industrial education"—by which term the principles of drawing, geometry, book-keeping, physics, mechanics and chemistry are generally understoodwill keep him at tramping; higher tramping if he knows much grammar and Latin,

WE do not deny the proposition that a study of speculative mathematics and of the classics disciplines the mind. It undoubtedly does: but so does everything else that equally causes the pupil to use his mind. Neither a problem nor a Latin sentence, in itself, increases the ability to think: it is the thinking which one does in solving the problem or unearthing the meaning that, by the universal law of practice, makes the mind stronger. And we submit that the mastery of practical mathematics as really necessitates sturdy thinking as does the ordinary study of pure mathematics; that the knowledge gained is worth more to a great number of persons; that, since mental discipline is given by actual studying, the pupil who lacks money or time cannot afford to take any study simply for its disciplinary virtue; and that what an industrial education may be supposed to lose by its substitution of practical for pure mathematics, and of the English language for fancy and impure classics, is more than made up by its employment of other disciplinary agents.

THE Marysville News, in speaking of the College of its boyhood days, says:

If you stumbled on an institution called a college, the first thing they would put you in would be Latin. From four to six years they would grind you through the Latin and Greek languages, with a little bolting through what they called mathematics, geometry or trigonometry. All of which, when well mastered, is about as valuable to the great mass of American citizens in all the journey of life as Cherokee Indian, or the songs sung while the Mexican mound builders were throwing their mounds up. Of all the grand advances the American mind has made during the last fifty years, none is greater than that of educating the masses, and directing that education in such a way as to bear favorably on the common practicabilities of life. This is the immediate province of our common school system. Every branch of literature conducive to this end should be introduced and taught, and none others. If there is an occasional outh, meteoric in his thirst for knowledge, et him, comet like, wander into other and distant systems, and explore to his liking. But our own sun should light up his own planets only.

# Practical Education in New York.

It seems that some of our eastern neighbors, the pedagogues of Massachusetts and New York, are beginning to see that the curriculum of their high schools needs a little patching, if they will futher rely upon the support of the working and producing classes. Massachusetts has been discussing the matter for several years, and the zens, if they could do so with a reasonable result was the introduction of a thorough and systematic course of industrial drawing and other practical studies into their schools. We now hear that at the annual meeting of the association of School Commissioners and City Superintendents of the State of New York, held in Utica, it was decided to make the course of their high schools more rational also, "so as to satisfy the demand of the industrial classes." The following is one of the resolutions passed by the association.

"Resolved, That we recommend study and experiment in the direction of practical labor, to the end of devising for our schools some practical system of industrial art which shall stimulate mental action and give skill in the arts which underlie the trades.

The resolution sounds somewhat undecided. We nevertheless hope that the gentlemen will soon find that right "end" for which they now seem to be fishing. They will have to "put up or shut up," as the strongest sentiments opposed to the policy of higher or secondary education in the public schools of the State have lately found expression from nearly all sources. The world is moving.—J. D. Walters.

ducational Calendar. - A spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W. Martin, Topeka.

Habits of Plants.-Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects in imical to the Kansas Farmer.

Special for Woman.—Special lectures on Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry, by Fron Redzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

A gricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

A Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "PRENTIS IN EUROPE;" "PIKE OF PIKE'S PEAK," the interesting address originally delivered under the auspices of the Kansas State delivered under the auspices of the Kansas State Historical Society, and never before printed; and "THE WORLD A SCHOOL," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher.

**Printing** I—Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well fur-nished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printng, the weekly publication of the Industrialist by the Department furnishes advanced students the requisite drill in newspaper work.

Kansas Text-Book, for teachers and students. Elements of Agricultural Ge-OLOGY, for the Schools of Kansas, by Prof. Wm. K. Kedzie, M. S., of the Kansas State Agricultural

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact."

In two parts: Part First-Elementary Geology Part Second - Origin and Formation of Soils.

Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a Centennial award for quality of work. Kansas Wansas mechanics, at this Kansas work, by Kansas mechanics, at thi establishment. Pronounced "faultless. series of School Records, made to comply with Kansas laws by a Kansas author and Kansas publisher. The best School Officers' Records sas publisher. The best text in the market.—Felter's Elements of Book-keeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.—The Annals of Kansas, a marvellous history of Kansas, written and arrinted in Kansas.—The Educational Calendar, a printed in Kansas.—The Educational Calendar, a publication for the Officers, beautiful monthly publication for the Officers. beautiful monthly publication for the Omeers, Teachers and Patrons of Kansas schools, for twenty-five cents per annum.—The best Railroad, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment for Kansas equal to the best in America.

Address. GEO. W. MARTIN, Topeka, Kas.

The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixtyfour pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case, Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most express and accurable reaches in the of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the Review and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

SATURDAY, JULY 6, 1878.

Mr. Godfrey's oration next week.

The wheat on the College farm has all been stored away in the new barn.

The Board of Regents will meet at the Adams House next Tuesday evening.

Stephen A. Garr has gone out to Great Bend to work during the remainder of the vacation.

The late storm has done considerable injury to the oats and spring wheat, by causing it to lodge

John Winne is hauling sand for the new building. He prefers Manhattan to Newton under any circumstances.

The corn on the College farm is all in tassel. It presents as fine a prospect for a large yield as does anybody's corn.

Prof. Ward has returned to Manhattan, after having taken a very pleasant trip through the eastern part of State.

No letters from the students this week. We presume they had too much Fourth of July to write letters successfully.

We are late with our paper this week, and are consequently enabled to insert some locals which could not have appeared had we issued on time.

W. C. Stewart returned from St. Louis last Wednesday. He is expecting Mrs. S. and the "big boy" from Irving in a few days, when they will go to keeping house.

George Platt came down from Vienna last Thursday morning, and took the evening train for Solomon City, where he spent the Fourth. He returned on Friday.

The Fourth was more generally and heartily celebrated in this State than it has been for some years previous. From all accounts a general good time was had all around.

A very heavy wind and rain-storm visited Manhattan this (Monday) morning. It rained about two hours, during which time two or three inches of water must have fallen.

President Anderson was down here on Wednesday and Thursday. He and his family will come down next Monday and stay a week or so-at least during the meeting of the Board.

Mr. James A. Bell is, we are sorry to learn, suffering with rheumatism this vacation. We get this item from a friend of his in Johnson county who expects to attend the College.

John Mann started for Silver Lake this (Monday) morning to work on a farm belonging to Mr. Bennett, one of the contractors on the new building. He will return when the term opens.

Miss Ellen Fletcher, who would have been a member of the last graduating class had she remained in College during the year, has a position as seamstress in Mrs. Briggs' Bazaar in Manhat-

We hear that C.O. Smith has a situation in the be confirmed. Mr. Smith is a deserving young man, and will never dishonor the vocation which he has chosen.

We have received a circular from the National Agricultural Congress announcing that its next semi-annual meeting will be held at New Haven, August 27th, 1878. Hon. Alfred Gray, Topeka, is one of the vice-presidents of the Congress.

Ahem! The Atchison Globe says that the teachers are a much better looking set of people than the editors, to whom he ascribes a certain cadaverous countenance. He seems especially well pleased with the "marms" of brother Scott's corps. Ahem!

Secretary Sheldon has sent us a pamphlet copy of the premium list of the next Riley County Fair, to be held at Manhattan, Sept. 4th, 5th and 6th, 1878. The officers of the Association hope to make the Fair this year excel all preceding ones. The pamphlet was gotten out at the Nationalist office. and is a very neat job.

A copy of the Journal of the Proceedings of the Sons of Temperance of Kansas has been received at this office. It is a thirty-four page pamphlet, containing the proceedings of the Grand Division, for three sessions, with reports and statistics. To any one desiring information in regard to this temperance order, the pamphlet referred to would be very valuable. It bears the imprint of the Kansas Publishing House, which is all we need to say in proof of its typographical excellence. Copies of this Journal may be procured by sending ten cents to A. A. Stewart, Grand Scribe, Manhattan.

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A freight train is the most indifferent, uncertain and independent thing that we ever attempted to deal with. It is never on time, starts when it pleases, and stops just where, just when and just as long as it wants to; was never known to accommodate any one, no matter what the emergency, and always unloads its passengers about a half mile from the depot. A party of Manhattanites desired to go down to Wamego on the morning of the Fourth in time to take the 4:30 excursion train to Kansas City. We were informed by the agent that arrangements had been made for our accommodation to have a certain freight train run ahead of time and connect with the aforesaid excursion train. Accordingly, the party went down to the depot about two o'clock to take the train; a short time after four the freight arrived, took on its passengers and proceeded to St. George, where it rested for nearly an hour. Some time after six o'clock we arrived in Wamego, and learned that the excursion had gone an hour and a half before. We suddenly lost all desire to go to Kansas City, and concluded to while away the time at the Wamego celebration, which, by the way, was a grand affair. But seriously, some one is responsible for such inexcusable mismanagement as this. The joke is on us and the other members of the party this time; and if we are forgiven for fooling with this freight train, we will never board another one.

#### ENTERPRISE ITEMS.

Al Wisner has gone te Topeka to clerk in the

S. M. Fox has the contract of furnishing the new school-house with desks.

Clair M. Patee is about to purchase the Valley Falls *New Era*. Clair is a first-class printer and we hope he will do well.

A militia company has been lately organized in our city through the commendable efforts of Messrs. O. C. Barner, Sam Kimble, Jr., and others. As an undeniable proof of their active business ability, they have in three meetings, drawn up, signed and sent to Gov. Geo. T. Anthony their petition; enrolled about fifty members, and elected their officers. Last evening their eyes bright-ened and their hearts were rejoiced at receiving the Governor's requisition, through Adjutant Gen. Peter S. Noble, enclosing muster roll. In signing this they place themselves under the same responsibilities with the regular army.

#### NATIONALIST ITEMS.

John Winne has returned home - this time to stay, we are glad to say.

Harvey Haines has returned, bringing a cousin with him to attend College.

Mrs. Pres't Anderson's letter in the Industrialist from Put in Bay, was very interesting. Ripe blackberries are in market. All small

fruits have done well this season, and the prospect for grapes is very fine.

Mr. Polson says that the Odessa wheat is not doing well on Fancy creek this year. It is rusted badly and looks sickly. The rye is also poor. Superintendent Billings has engaged an able

corps of assistants to conduct the Normal Institute in this county, and it will undoubtedly be one of the best in the State.

We received a lot of apples and peaches last Monday, from Hon. Welcome Wells' orchard, that were really fine. One of the peaches—Hale's early—measured nine inches in circumference.

J. R. Strong is running the Wild Cat factory now, and is making a very superior quality of cheese. There is no necessity for sending to New York for cheese while as good is made at our

Manhattan Horticultural Society will meet at the room formerly occupied by Raphel & Dow, on Thursday, July 11th, at 2 o'clock P. M. The sub-ject will be Shrubs and Flowers. An address is expected by Prof. Gale. All are invited to attend Emporia News office, and trust that the report may and bring such specimens as they conveniently

> The Industrialist comes to us this week, looking as bright and shining as a new silver dollar. It is filled with valuable and interesting reading matter, and mechanically it stands No. 1.—Onaga

We are glad to see the Industrialist again. Since we enjoyed its weekly visits, during the publication of our first volume, it has been enlarged by the addition of a column to each page, and much improved as to its appearance by an illustrated head presenting a view of the College buildings and grounds. The INDUSTRIALIST ought to have a very large circulation. The terms (75 cents) are low for such a paper.—Kansas Church-

# DIRECTIONS TO APPLICANTS.

# TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he

will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as posssble.

# GRADES.

Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so.

pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in

the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

#### RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

### EXPENSES.

There are no charges whatever for enrollment attendance or instruction in the regular courses nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instru-ments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Weshing costs from seventy-five cents to week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

#### LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.—Manual labor in the reci-ations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated While the interest of the student will be held par amount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. - When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten

# AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. can teach all who come, but cannot absolutely *gromise* anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to de the the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

#### RULES. 1. Behave as a true man or woman should, at al

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

# 3. Penalty: "Leave!"

times and in all places.

# PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Depart-

#### CALENDAR.

Spring Term 1878.—Began Thursday, Jan. 3d, and will close Wednesday, May 22d.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

#### TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 a. m., immediately after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

#### LITERARY SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in College building every Friday at 2 p. m. Ladies admitted. New students cordially invited o attend. George L. Platt, President. MISS ESTELLE BOUTON, Secretary. to attend.

WEBSTER.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. LEWIS A. SALTER, President.

TULLY SCOTT, Secretary.

#### RAILROAD TIME-TABLE.

# KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going East...... 12:20 P. M. Going West..... 4:10 P. M.

#### FREIGHT ARRIVES.

Going East...... 2:55 P. M., and 10:30 P. M. Going West...... 6:20 A. M.

Passengers with tickets are carried on any of the above-named trains.

GEO. C. WILDER, Agent.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

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**Vocal Music.**—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reckoned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Dress-Making and Millinery.—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the high-est breeding. Address E, M. Shelton, Manhattan,

Farming for Profit.—Special courses in Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

chool District, Township and County Bonds .- District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manl

Chemistry and Physics.—The most valuable and practical course in the West-Elementary Physics, Inorganic Chemistry, Or-ganic Chemistry, Chemical Analysis, Agricul-tural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photog-raphy and Household Chemistry.

English Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Anhattan Bank.—E. B. Purceil, Banker; Jno. W. Webb, Cashier. A general banking business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

Mathematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

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A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agriculness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its which work much be the of civing a workly are all the contractions. chief work must be that of giving a useful and usa-ble education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION. Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an educa-tion; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which

FARM	MER'S	COURSE

the others are as ribs and muscle.

WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

# WOMAN'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Farm Ec 2. Geology 3. Polit'l I 4. Zoology 5. Phys'c'l 6. Logic.	1. Botany, E 2. Inorganic 3. Industrial 4. Horticul., 5. Organic, F	1. Physiology 2. Rhetoric. 3. Algebra. 4. English Lit 5. Physics. 6. Industrial	1. Drill in Engl 2. Drill in Aritl 3. Industrial Dr 4. English Stru 5. Adv'd Arith 6. U.S. History,
Farm Economy, Special Hygiene Geology, Mineralogy. Polit'l Economy, Practical Law Zoology. Phys'c'l Geography, Meteorology Logic.	Botany, Entomology. Inorganic Chemistry. Industrial Drawing. Horticul., Landscape Gardening Organic, Household Chemistry. Household Economy.	Physiology. Rhetoric. Algebra. English Literature. Physics. Industrial Drawing.	Drill in English. Drill in Arithmetic. Industrial Drawing. English Structure. Adv'd Arith, Book-keeping. U.S. History, Industrial Drawing

# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it he urred that the distinctively conjustive to

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent. one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. FOR FEMALE STUDENTS. The Farm. The Nursery. Dress-making Telegraphy. Scroll-sawing. Carving. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

Engraving. Photography. Instrumental Music. Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

# DEPARTMENTS OF INSTRUCTION.

### DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE. Second Year: - General principles of breeding; history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage; how to lay out a system of drains; house drain-

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the arrangement of the farm with reference to the system to be pursued; rotation of crops; genera-advantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; form building. ing; stall feeding; steaming food; soiling experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY. Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

# DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and sys tematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practi-cal drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and

ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and form pursuants. of commercial and farm nursery; modes of pruning; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and use-ful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

# CHEMICAL DEPARTMENT.

PHYSICS This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book, Ganot

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to their history, properties, manufacture, and especially with regard to their uses on the farm and These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY. This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboratory practice.

CHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity laws of storms; rain, snow and atmospheric elec tricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallography, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composi-tion of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of fruits, etc.

SPECIAL COURSES

Are constantly in progress in Assaying, Pharma ceutical Chemistry and Photography.

ENGLISH LANGUAGE.

Words are simply tools used to express ideas; Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called language instance are appropriated to the seamstress. guage, just as an engineer handles a locomotive and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the stu-

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; descriptions of the services of the services.

tion, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of com-positions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and penman-

ship.

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter
the printing class, the printing-office being the
work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS .- The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the topics included are:

Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech. Stems: Their derivation their omces and prop

erties; their relation to other parts of words. Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems.

Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reainto an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT. Figures and lines, like words, are only instru-ments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given opera-tions are performed, but because they can nei-ther add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC. The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING
Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

Algebra is included in the course as a preparation for the study of Surveying.

DRAWING.

The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of forures. do of figures. A farmer follows a line when lay-ing a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct anylinetics. its direct application, or in the exercise of that taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing during the terms indicated by graphical Drawing, during the terms indicated by the Course of Study. In addition, constant prac-tice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Depart-

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach or within his ability to construct: within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, reng ders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the organizer is accordingly supplemented with of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical prin-ciples and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to woman.

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy omy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

GARDENING is included in Practical Horticulture. See heading, "Landscape Gardening."

HOUSEHOLD CHEMISTRY. See heading, "Household Chemistry."

HOUSEHOLD ECONOMY

Follows Household Chemistry and consists of lec-

Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and en laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlast-ingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry - and no more expensive.

Published every Saturday by the PRINTING DEPARTMENT

# KANSAS STATE AGRICULTURAL COLLEGE.

TERMS OF SUBSCRIPTION, 75 cents per year, postage prepaid. Ten cents per month, postage prepaid. Payment absolutely in advance! Paper stopped at expiration of subscription.

Address A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and care-fully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census tions, as shown by the last United States census. Of every one hundred persons engaged in a voca-tion by which money is gained, the ratios were as

Normal education:	4.40	
Teachers	1.13==	1.1
Professional education:		
Ministers	0.43	
Lawyers	0.55	
Doctors	0.73 =	1.7
Industrial education:		
In agriculture	59.13	
In manufacturing and mechanical	14.63	
In personal service	13.89	
In trade and transportation	9.51=	97.1
	10	0.00

# AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education. endowed and put in operation by the State was its ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

LOCATION. It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy com-

munication with every quarter. COURSE OF STUDY. The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English lanligent and expert in the use of the English Ran-guage; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thor-ough instruction and laboratorial or field drill in ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Logic. It has an equally practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving making, printing, telegraphy, carving, engraving

### The Kansas Farmer.

[An Oration delivered by A. N. Godfrey, a member of the graduating class of the Kansas State Agricultural College, Tuesday evening, May 21st, 1878.]

The Kansas farmer is a sensible man, being a Kansan and a farmer. His selection of a home is commendable, for Kansas has few equals and no superior. Her climate will compare favorably with that of any other State or country. She has faults, but so have all places upon this little globe There is but one perfect land, and it does not exist in this life. Those who leave Kansas to seek a better country in this world are sure to be convinced that their search is in vain. "Doubtless God could have made a better country than Kansas, but doubtless he never did."

The wasteful, negligent style of farming formerly practiced is fast disappearing. The uncovered rail corn-crib is rapidly being replaced by substantial granaries; and the hay shed by neat and commodious barns. The scrawny "domestic" and Texas cattle are giving way to fat and sleek animals of the improved breeds. The "elm peeler" hog has destroyed its last patch of potatoes, while the Berkshires and Poland-Chinas furnish our pork. The old breeds were unrivaled as consumers, but our modern animals are the producers.

Our farmers have encountered many serious checks: such as the Free State War of early days; the drouth of 1860, giving Kansas a name which many rainy years have not wholly washed away; and the locust visitations, creating hard times and panics. These misfortunes resulted in some good, by driving from the State many of that class of chronic grumblers who are forever predicting drouth and grasshoppers. The brave and true men are thus left to build up the country. With all these "backsets," immigrants have been constantly pouring in. Our prairies are becoming dotted with farms, our homes are rapidly improving, and Kansas already holds a high position as an agricultural State. The most improved farm machinery is used, and the best breeds of stock are established. Railroads are increasing, and markets becoming better. Farmers are alive to their interests, and are fast rising in the scale of intelli-

Farming embraces more than the cultivation of corn and wheat. Stock raising, especially in Kansas, is indispensable to success. Here, with so much natural pasturage, it can be pursued with little labor, other than the care required during winter. Our State is admirably adapted to the better breeds of stock. A farmer's aim is to make his land produce as much as possible and retain its fertility. By keeping stock, much of the unsalable products of the farm, as straw and fodder, may be converted into animal products which find a ready sale. Experience has shown that many of our staple crops will yield larger profits by judicious feeding than by any other means. Beef

for the manure obtained is by no means a small consideration. Our soil, though now exceedingly fertile, cannot always remain so unless supplied with the elements annually taken away by the crops.

Fruit culture is another essential branch of Kansas farming. Our State is already celebrated for fruit, and her displays at the Centennial and other exhibitions fully justify her fame. There is no greater pleasure than that yielded by one's own "vine and fig tree." A farmer must indeed be blind to his interests who does not enjoy the advantages to be derived from this source. As a matter of domestic economy, fruit is of great importance. In regard to health, it is almost essential. Our Kansas orchards have deprived the doctors of many a good round fee. As a matter of commerce, we may rest assured that fruit will be in good demand for many years. Immigration has but fairly commenced, and all the new-comers must be supplied. We shall always find a market in Colorado and the West. Every farmer should be his own nurseryman, and thus start an orchard at a very small cost. Horace Greeley's advice, "Go west, young man, go west," would have double force if supplemented by another, "Plant fruit, young man, plant fruit."

Farming has been called man's last resort to be followed only by those who have not the means and ability for other pursuits. Yet to be a successful farmer,—one worthy the name, - just as much or more tact and energy are required as in the calling of a lawyer or a merchant. The importance of a practical education for our farmers is beginning to be more strongly felt. The greatest success in any profession is attained by the man who studies those principles which underlie his every-day practice. Thus, to become a thorough physician, a knowledge of chemistry and physiology is essential. To be a successful farmer, some knowledge should be possessed of those natural sciences which are most intimately connected with the farm. In order to run a threshing-machine, it is necessary to know the use of each part and its connection with the whole,— how to replace broken teeth in the cylinder, when to raise or lower the concave, and how to adjust the seives for different grains. The farm is a machine which, in complexity and range of power, far exceeds anything of man's invention. The seed is planted, and our machines produce "some thirty, some sixty, and some an hundred-fold." He who best understands the parts of this great mechanism - the soil, the air, light and moisture, with the use and relation of each to each - must be the most successful farmer.

Most of the natural sciences are intimately connected with farming. Botany treats wholly of plants, which are the very foundation of all agriculture. Chemistry teaches the changes in the plant, the composition of the soil, and the action of manures. In this land of potato beetle, chinch-bug and "grassand pork are not the only sources of profit, hopper," the study of entomology is of vital may be found upon a farm. It is only here

importance. A farmer should be able to distinguish friend from foe. By studying the life and habits of an insect, it often becomes an easy task to prevent its ravages. While no man can master the details of all the sciences, yet the most practical points can be learned in a very short time. These subjects can be best presented to the average farmer through the medium of our common schools. A text-book might be used which would give these simple scientific principles, that find hourly application upon a

The Kansas farmer should be a deep and constant thinker. His work, though mostly physical, requires real brain as a boat requires a rudder. There are different ways of performing every operation. There are often several wrong ways, but there never is more than one right way. It is not always easy to distinguish the one from the other. Much valuable time may be gained by a little forethought. Though it may be only a few minutes saved here, or a few steps there, its influence is seen in the day's work done. A farmer is called upon to exercise sound judgment at every step. He should possess taste, that he may lay out his grounds to the best possible advantage. The home and its surroundings should be rendered attractive and pleasant. We, as a State, have but just commenced our work of improvement, and the earlier we begin to shape this work to some definite plan, the sooner will that ideal become a reality. No intricrate and costly plans are desirable upon a farm; but simplicity, beauty and comfort should always be regarded.

A farmer should be systematic in all things. The old adage, "a place for everything and everything in its place," finds abundant application upon a farm. Its practice saves much inconvenience and loss of time, and is a sure indication of a successful farmer. He should be sufficiently skilled in the use of tools to sharpen a plow, form an ax-handle, or build a corn-crib. The ability to make any needed repairs in wood or iron is of great value. He should be economical but never stingy. A true farmer loves to share with others the fruits of his labors. Everything must be utilized and all forms of wastefulness carefully avoided. There are a thousand and one little leaks to be stopped, and "one penny saved is two earned."

A farmer's life should be made as pleasant as possible. In no other vocation is man brought so near to God. He is always surrounded with abundant manifestations of the Divine power and goodness. Every leaf and flower, every insect - everything speaks in eloquent language of the great Creator of all. Food for ennobling thought and study is offered on every hand.

Our farmer should, above all, be an enthusiast, loving his profession as it alone can be loved. It should not be lowered by being made a life-long struggle for money alone. The purest enjoyment life can give

that the perfect home can be found. A home surrounded by all the blessings of a beneficent Creator; a home free from the turmoil and strife of the world; a home for sweet repose after healthful labor. This is the farmer's home.

#### VALEDICTORY:

Classmates, we have spent many happy hours together. Our connection with the College has been fraught with pleasure and profit. Our student life, when viewed from the future, will appear doubly pleasant. The knowledge we have gained is of priceless value to us. Who would exchange it for money or land? Step by step we have been taught to "look through nature up to nature's God." We have reached the shores of the great ocean of knowledge, picking up a few pretty pebbles and shells; but the vast expanse is still before us, stretching far off into the infinite. Our mutual trials and pleasures have bound us together with a tie stronger than that of friendship - a tie which death alone can sever. We meet no more as a class, but in whatever vocation we may hereafter engage, our hearts will ever cherish a fond memory for the class of 1878. Our student life now ends, our life for self begins.

Members of the Faculty, we cannot ex press our thanks for the kindness you have ever shown. You have taught us with care and patience. Our imperfections you have overlooked, our labors encouraged. Your instruction will be of great value. Through it we have gained strength-not to battle with the world, but to work with it.

We sincerely thank the Board of Regents, and through them the State of Kansas, for their earnest efforts in our behalf. We feel the wisdom of the course they have mapped out, and which we have now completed. By it we have obtained the sound wheat of an education, from which the useless chaff and straw have been carefully gleaned. Though we can meet you no more as students, our sympathies will ever be with our Alma Mater and her good work.

President Anderson, your every effort has been for our best good, and your teachings of the most practical character. In your classes we have spent hours that shall never be forgotten. You have been little less than a father to us, and we bid you adieu as children would part from a loving father.

The citizens of Manhattan and vicinity have shown great kindness. Accept our heartfelt thanks.

As students of the Kansas State Agricultural College, we bid you each and all an affectionate farewell.

# THE INDUSTRIALIST.

SATURDAY, JULY 13, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

ACCORDING to statistics published recent ly, the salaries of the male teachers in the State of New York average \$84 per month; of the females, \$68.

Of the 72 graduates of the Illinois Industrial University, only 15 have abandoned the original vocations for which they prepared themselves at that institution. Of the graduates, 19 are teaching sciences and industrial arts, 13 are farming, 8 are civil engineers, 7 are machinists, and 2 are veterinary surgeons.

# Tally Another.

we cited a resolution passed by the New that are committed by one who can read York State Teachers' Association, exhibiting rather pointedly the strong pressure for a more practical education in the Eastern the Penitentiary of Illinois, of the one thou- Tom and his finely improved farm.

States. We have similar good news from Missouri. The State Teachers' Association of that State, held at Carthage, June 28th, passed the following resolution by a unan-

Resolved, That we recommend to the favorable notice of superintendents and boards of education "The Manual Educational System," laid before us by Prof. Woodward; and especially that "Industrial Drawing" and "Natural Science," as foundation stones, shall receive immediate attention and encouragement.

THERE is no greater "dignity" in labor than in rest, but there is a noble dignity in that kind of manhood which faithfully discharges every duty of life, whether it involves labor or rest. Washington displayed as much heroic generalship in his wise retreats as in his furious attacks; but neither retreating nor advancing is valuable save as a necessary means of winning the final victory. No man labors for the mere purpose of laboring, but only because a desired end cannot be gained in an easier way; nor does an animal. And it is difficult to see why a boy should be made to do that which no other creature does, and which he will never do when a man. So long as a student feels that he is gaining either knowledge or skill that will be valuable to him as a farmer, he will work in the field, in the nursery, with the cattle, or in the shops, as cheerfully as he plays, and more cheerfully than many study; but beyond that point, or for any other purpose "compulsory labor" is no more beneficial to him than it would be to his father. So far as "exercise" is concerned, the natural tendency of youth toward fun and frolic may be safely trusted a few more centuries.

### Figures do not Lie.

The following statistical items are extracted from a paper read before the Illinois State Teachers' Association, by S. H. White, of the Peoria Normal School. Although they are, like all statistics, rather unpoetical matter, they present a force of argument in favor of compulsory education which is overwhelming and indisputable.

In the city of New York among the illiterate, there is one crime to a fraction over three persons; while among those having a common school education, there is one crime per year to about twenty-seven persons. The chances for crime among those who cannot read and write, are therefore nine times as great as among the rest of the people. In the State of New York, of the criminals, thirty-one per cent cannot read ject to her appearing on the stage? When nor write; while of the whole population, about seven per cent are equally ignorant. It follows that a person not able to read and write is six times as apt to commit crime as one who can read and write. In Massachusetts in 1871, among the ignorant population, one in twenty committed crime; while among the reading population, there was one crime in about one hundred and twenty-six persons. In France, from 1867 to 1869, one-half nearly of the inhabitants could neither read nor write; and this half furnished eighty-seven per cent of those convicted and punished. An ignorant person, on the average, committed seven times the amount of crime that one not ignorant did. In the New England States, only seven per cent of the population can neither read nor write; yet fully eighty-five per cent of all the crimes are committed by this small minority. In New York and Pennsylvania, an ignorant person commits on an In the last number of the Industrialist, average seven times the number of crimes

sand three hundred and fifty-three inmates on the 13th of November, 1874, there are two hundred who can neither read nor write; while one hundred and twenty-seven more can read a very little, or thirty-nine per cent who are not at all or very insufficiently educated. Comparing these figures with the census of that State, it appears that of the adult population who can neither read nor write, one in every two hundred and twenty-five is in the penitentiary; while of the rest, one in every five hundred is there. Counting with the illiterates the one hundred and thirty-seven who can read a very little, the ratios change to one in one hundred and sixty-seven, and one to five hundred and sixty-six, respectively.

These figures certainly show that there is a very close relation between ignorance and crime; and if we bear in mind that in the census tables and in the reports of prison boards, all those who can write their name or read a very little are counted in among the educated, while in fact that state of education is without the least influence upon his social condition, then the different ratios presented above must be accepted as very favorable yet for the side of ignorance. Further comments are not necessary. Ignorance is not bliss; it is the root of all evil.-J. D. Walters.

### Common Sense in Woman's Education.

Many hold that woman's sphere does not include the professions: and the fact is, that only the smallest number of American women enter them. What is the sense, then, in giving the girl and the boy the same education? If preaching the gospel or practicing law is the natural work of woman, then certainly the girl should be taught exactly the same things and be drilled in exactly the same way as are boys who prepare for the professions; but if not, it is hard to see either the necessity or fitness of putting her over precisely the same course. At any rate, those who advocate this proceeding should be the last to complain because a young woman, finding that she can best use her acquired knowledge in the practice of a profession, acts just as does the young man, and invests her capital where he invests his. She has exactly the kind and amount of knowledge possessed by him; and if the practice of law is a wise investment for him, it must be equally so

Why give your daughter the training of a professional actress, if you intend to obforced to earn a support, where else can she profitably use her powers except in the glare of the footlights? If Mrs. Grundy is shocked by hearing a stentorian sneeze from her super-refined daughter, let that estimable matron stop putting snuff in the delicate nostrils of the lovely being. There is something ludicrous as well as illogical in rushing a girl through the mathematics only useful to the astronomer, the Greek only valuable to the preacher, and the fancy things which are not especially valuable to anybody, before making her skillful in doing the things which ninety-nine of every hundred women are called upon to do day by day, and which the remaining one may have to do at any hour. Should the girl never use this latter knowledge, she would be no worse off than the great mass of those who graduate from female colleges, for they rarely use what they have been taught. But, on the other hand, if, instead of the elegant and fascinating Charles Augustus, who, growing weary of waiting had long since married Hortense, she should marry the energetic Thomas Brown, jr., it might easily happen that such knowledge would From the report of the Superintendent of be very useful in the management of both

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Special for Woman.—Special lectures on Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

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Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "PRENTIS IN EUROPE;" "PIKE OF PIKE'S PEAK," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and Historical Society, and never before printed; and "THE WORLD A SCHOOL," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher. Topeka, Kansas.

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"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact."

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Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific subjects.

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the Review and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

SATURDAY, JULY 13, 1878.

The stone and mortar for the new building is carried to the second story on a car drawn by two

The boys on the College farm have been harvesting oats and millet this week. The yield is large in both cases.

The College nursery hands are at work in the blackberry patch this week. There is a large crop of very fine berries.

George A. Gale started on his canvassing tour last Monday. He represents a good nursery, and we trust he may be favored with many orders.

The new College building is looming up grandly, notwithstanding the hot weather. The carpenters are setting the window frames in the second

We are indebted to W. H. V. Raymond, of Kansas City, for a copy of the Kansas edition of Harper's School Geography. We shall speak of it again hereafter.

A sister and nephew of Capt. Todd's, one from New York and the other from Montana Territory, paid him a visit last week. They were highly pleased with Kansas.

Letters inquiring for suitable boarding places, and other information in regard to the College, are pouring in from all sides. The prospects for a large attendance next term are very good.

We hope to never reach that climate where it gets hotter than it has been here this week. We don't know how high the thermometer has registered, but should guess not less than 175°.

We met a man this morning who said he would have over one thousand bushels of peaches this year, and he lives only eight miles from Manhattan. He had some very fine specimens with him.

Work is soon to be commenced on an addition to the Congregational church building, in Manhattan. The addition is in the form of an ell extending southward, and nearly \$1,000 has been subscribed this week for that purpose.

W. C. Stewart is putting up telephones at some of the stations on the College line. There will be a "phone" at the depot, post-office, his residence, his class-room, and the President's office; and several others will be added when the term begins.

The Topeka Commonwealth says that J. E. Williamson is teaching grammar, geography and botany in the Shawnee County Normal Institute, and is also giving lessons in vocal music. Joe has been employed as principal of the Harrison Street school of that city for another year.

Will Sikes, who at the close of last term expected to go to California, has concluded to attend the College another year. He says that C. M. Hulett, of Johnson county, who was here during the collegiate year of 1876-7, expects to return with him. Glad to have such boys come back.

Not one out of the thousands of people, from all quarters of the globe, who have visited Kansas this year, has been disappointed, or feels that the stories about the fertility of her soil, the energy of her people, and the beauty of her landscape, were at all exaggerated. Their universal testimony is that her praise is well deserved.

The Board of Regents held its regular quarterly meeting this week, all the members being present, and had a pleasant and very busy session. The more important items transacted were the reception of the annual reports of the various departments; the acceptance by Mr. T. T. Hawkes of the position of Superintendent of the Mechanical Department; adding English Literature and Elocution to the Farmer's Course of study; the acceptance of the resignation of Prof. Kedzie; the election of Prof. Ward as Loan Commissioner; the auditing of bills and allowance of estimates for the current quarter; the election of Regent T. C. Henry as a member of the Executive Committee; and the adoption of a full set of by-laws and regulations for the government of the Board and the College. The matter of developing the department of military science and tactics is under consideration, and the financial condition of the institution is steadily and rapidly improving. The next term will find a full and able corps of instructors on hand, and everything in first-class shape.

Providence, in its infinite wisdom, has not deemed it best to bestow upon the poor INDUCE-TRIALIST such earthly goods as enable others to "do" foreign lands, "where other people speak in other tongues." Our lot is poverty; yet what are nickels compared with a poetical mind. Solon pitied Kræsus for being the richest man on earth. Alexander the Great admitted that if he were not Alexander the Great admitted that if he were not the departments, and this process is rigorously tion. Price, 75 himself, he would like to be Diogenes, the tramp used for sifting out incompetent and indolent art, Manhattan.

philosopher; and had he known what the INDUCE-TRIALIST knows, he would have immediately made the change by handing over his purple robe and crawling into the hogshead.

The INDUCE-TRIALIST travels, too. When the toil of the day is over; when the sun dips down behind the rosy clouds of the west; when Luna's silvery --- etc., then his poetical genius mounts the balloon of imagination and sails away-far away. Now, perhaps, he visits the glorious Alps, with their snowy peaks, emerald meadows, cosy cottages, silvery lakes, and golden clouds. Now he sails down the historic father Rhine, winding through orchards and vineyards broken by bold cliffs proudly crowned by ivory-clad ruins of bygone ages. Now he smokes his cigar in the Champ de Mars, and ten minutes after he finds himself sitting at the Giant's Causeway, watching "the breakers lap and curl below," reflecting over the eternal fitness of things and the infinite greatness of mother nature.

But we forgot to mention the INDUCE-TRIALIST'S companion in these spiritual ramblings. He is a Kansan also, and consequently a sensible fellow; cleanly dressed, of duodecimo size, and well gotten up generally. During all our journeys he has never tried to borrow a cent of us, and - well, he is a present from brother Martin, State Printer. It is "A Kansan Abroad."

#### ENTERPRISE ITEMS.

The colored population are making arrangements for a grand Emancipation Celebration on the 1st of August.

J. C. Van Everen brought in a hen's egg the other day that weighed something less than four pounds. It was a monster.

Maj. Adams threshed a crop of volunteer wheat last week. The sixteen acres yielded in the neighborhood of 350 bushels.

Among the decorations at the Congregational church last Sunday was a bunch of corn leaves, with silk two and a half feet in length.

The two string bands of Manhattan have consolodated, and will hereafter work in harmony. A good idea. We now expect to hear good music.

Last Sunday was the hottest day of the season, and the night following was if anything hotter than the day. A shower towards morning cooled the atmosphere a little.

There were several parties and picnics in Manhattan and vicinity on Independence day. Among them may be mentioned a quilting and dinner at Mr. Hulse's barn, a picnic in Mr. Brous' grove, a picnic at Jesse Ingraham's, and one up on the Wild Cat. Several families from town went the Wild Cat. Several families from town went up to Eureka Lake and spent the day. They all report a pleasant time.

### NATIONALIST ITEMS.

Hot! hotter!! hottest!!! the weather.

Mr. Wilder sold about sixty tickets for the Wamego celebration.

Mr. Wm. Hill is marketing his splendid crop of blackberries. He expects to pick 1,000 quarts.

The town clock for the new school-house was shipped from Boston on the first of July, we

Superintendent Billings informs us that the prospect is favorable for a large attendance at the Riley County Normal Institute.

We are shipping, from this place, a great quantity of blackberries to Denver, Colorado, and to owns of smaller size in western Kansas

Riley county has about 25,000 acres of corn, 15,-000 acres of wheat, 3,000 of oats, 800 of barley, 575 of potatoes, besides the flax, castor beans, broom-

Rev. R. D. Parker was in his pulpit to administer the Sacrament, though very weak from his recent illness. But since then he has been worse and confined to his bed again.

We regret very much to hear that Prof. Kedzie has resigned his professorship in the Agricultural College to take the chair of chemistry at Oberlin University. An enthusiastic scientist and a natwill be great one of the kind of men an institution should not part with when it can be avoided.

Last Sunday we read the Kansan Abroad, by Noble L. Prentis, and were even better please with the letters from Europe than when they first appeared in the Commonwealth. The two lectures: "Pike, of Pike's Peak," and "The World a School," are both excellent. We do not recommend this book because it was written by a Kansan and printed in Kansas, but on account of its intrinsic merits. It is well worth the money. Sent by mail on receipt of \$1.25. Address Geo. W. Martin, Topeka, Kans. The second edition is now ready for delivery.

# DIRECTIONS TO APPLICANTS.

# TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he

will be unable to retain position if admitted.

Pupils will be received at any time during the Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as posssble.

Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all

pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in the College wholly depends upon his own action. The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

#### RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

#### EXPENSES.

There are no charges whatever for enrollment, There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students. the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianes or organs. the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

#### LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.-Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. - When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

# AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make onehalf their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire suffi-cient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have repromise anything more. Hitherto we have re-frained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

# RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

# PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Department, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Educa-Price, 75 cents a year. Address A. A. Stew-

#### CALENDAR.

Spring Term 1878.—Began Thursday, Jan. 3d, and will close Wednesday, May 22d.

Full Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

### TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

#### LITERARY SOCIETIES.

Alpha Beta.—Chartered, December 26th, 1870.

Meets in College building every Friday at 2 p. m.

Ladies admitted. New students cordially invited to attend. George L. Platt, President.

MISS ESTELLE BOUTON, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. LEWIS A. SALTER, President.

TULLY SCOTT, Secretary.

### RAILROAD TIME-TABLE.

#### KANSAS PACIFIC RAILWAY. PASSENGER ARRIVES.

Going East...... 12: 20 P. M.

#### FREIGHT ARRIVES.

Going East...... 2:55 P. M., and 10:30 P. M. Going West...... 6:20 A. M.

Passengers with tickets are carried on any of the above-named trains.

GEO. C. WILDER, Agent.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

H. S. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

**Vocal Music.**—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reck-oned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Dress-Making and Millinery.—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26 The Farm Department of the Agricult-

ural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the high-est breeding. Address E, M. Shelton, Manhattan, Farming for Profit.—Special courses in Kansas Practical Agriculture. Simple Til-

lage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Manhattan Bank.—E. B. Purceil, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

athematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Board of Regents.

S. M. WOOD, President, Elmdale.
W. L. CHALLISS, Vice-President, Atchison.
JNO. A. ANDERSON, Secretary, Manhattan.
B. L. KINGSBURY, Burlington.
J. R. HALLOWELL, Columbus. T. C. HENRY, Abilene. L. J. BEST, Beloit.

E. B. Purcell, Treas. L. R. Elliott, Land Agent. E. Gale, Loan Commissioner. Manhattan, Kansas.

FACULTY. J. A. ANDERSON, President, Prof. Political Economy.
M. L. WARD, Prof. Mathematics and English.
WM. K. KEDZIE, Prof. Chemistry and Physics.
E. M. SHELTON, Prof. Prac. Agricul., Sup't Farm.
E. GALE, Prof. Botany and Horticulture.
J. E. PLATT, Prof. Elem'y English, Mathematics.
JNO. D. WALTERS, Teacher Industrial Drawing.
HOND, J. REEWER, Lecturer on Practical Law. HON. D. J. BREWER, Teacher Industrial Drawing.
HON. D. J. BREWER, Lecturer on Practical Law.
A. TODD, Sup't Mechanical Department.
A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION. Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they tion; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle. the others are as ribs and muscle.

# FARMER'S COURSE.

	I TITOTITION	COCIO	
FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology 6. Logic.	<ol> <li>Botany, Entomology.</li> <li>Inorganic Chemistry.</li> <li>Practical Geometry.</li> <li>Practical Geometry.</li> <li>Horticul., Landscape Gardening.</li> <li>Organic, Analytical Chemistry.</li> <li>Practical Surveying.</li> </ol>	<ol> <li>Physiology.</li> <li>Rhetoric.</li> <li>Algebra.</li> <li>Practical Agricul. (elementary).</li> <li>Physics.</li> <li>Industrial Drawing.</li> </ol>	<ol> <li>Drill in English.</li> <li>Drill in Arithmetic.</li> <li>Industrial Drawing.</li> <li>Industrial Drawing.</li> <li>English Structure.</li> <li>Adv'd Arithmetic, Book-keeping.</li> <li>U.S. History, Industrial Drawing.</li> </ol>

# WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressi for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

# WOMAN'S COURSE.

	11		
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Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
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# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS

Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly underpractical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent:

FOR MALE STUDENTS.

The Form

The Farm.
The Nursery.
Carpentry.
Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

Dress-making. Printing. Telegraphy. Scroll-sawing. Carving.
Engraving.
Photography.
Instrumental Music.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

# DEPARTMENTS OF INSTRUCTION.

DEPARTMENT OF AGRICULTURE. PRACTICAL AGRICULTURE.

Second Year: - General principles of breeding history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; inhuence of this control and state of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage; how to lay out a system of drains; house drainage; sewerage.

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; generally and arranges of a rotation; the best rotation with advantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY. Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

DEPARTMENT OF BOTANY AN PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and systematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practi-cal drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of pruning; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applica-tions of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

# CHEMICAL DEPARTMENT.

PHYSICS

This includes a full consideration of the laws of This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book, Ganot

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to their history, properties, manufacture, and espe-cially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY. This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived CHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY. Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallography, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composi-tion of food; bread; tea, chocolate and coffee butter and milk; ripening and preservation of

SPECIAL COURSES Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE.

Words are simply tools used to express ideas; and, since the vast majority of our communicaand, since the vast majority of our communica-tions are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called lanintelligent in handling the machinery called lan-guage, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usu-ally found in literary colleges, the constant atten-tion given this subject by all the departments, and especially the practice required in the print-ing classes, affords superior advantages to the stu-dent.

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of compositions analysis of sentences; positions printed as written; proof reading; gramconstruction; superfluous words and clauses; drill in reading, speaking and penman-

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language Pupils deficient in spelling, etc., should enter the printing class, the printing-office being the work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS .- The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the

topics included are:

Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech.

Stems: Their derivation; their offices and properties: their relation to other parts of words.

erties; their relation to other parts of words.

Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems.

Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of the exercises of the pupil through his whole course erties; their relation to other part

the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT.

rigures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships, Figures and lines, like words, are only instru-

not because they do not know why given operations are performed, but because they can neither add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the stu-The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING
Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

Algebra is included in the course as a preparation for the study of Surveying.

DRAWING. The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when laydo of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning Servell sawing Carving Engraphic and Print. ing, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Depart-

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block. grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with such special guidance as is found measure for a such special guidance as is found mecessary for a full comprehension of the mathematical principles and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygiene, making the course of the state of t instruction in hygienic matters as are valuable to

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy." GARDENING is included in Practical Horticul-

ture. See heading, "Landscape Gardening." HOUSEHOLD CHEMISTRY. See heading, "House-

hold Chemistry."

hold Chemistry."

HOUSEHOLD ECONOMY

Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and en laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in

Published every Saturday by the PRINTING DEPARTMENT OF THE

# KANSAS STATE AGRICULTURAL COLLEGE.

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#### INDUSTRIAL EDUCATION

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned pro-fessions." The relative demand for the three forms of education is indicated by the proportion forms of education is indicated by the proportion in which the citizens of Kansas follow these voca-tions, as shown by the last United States census. Of every one hundred persons engaged in a voca-tion by which money is gained, the ratios were as follows:

Normal education:		
Teachers	1.13=	1.13
Professional education:		
Ministers	0.43	
Lawyers	0.55	
Doctors	0.73=	1.7
Industrial education:		
In agriculture	59.13	
In manufacturing and mechanical	14.63	
In personal service	13.89	
In trade and transportation	9.51=	97.10
	-	

AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the other fact that the acts of both Congress and of ansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

LOCATION. It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricult-ural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic Analytical Chemistry, Surveying, Geology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving and music.

#### Department of Higher Mathematics and English.

Report of Prof. M. L. Ward for 1877-8.

To the Board of Regents of the Kansas State Agricultural College:

GENTLEMEN: - I have the honor to submit for your consideration the following report of the Department of Higher Mathematics and English, for three terms included between January 4th, 1877, and May 22d, 1878.

TABULAR VIEW of Classes, during 1877-8.

Females.	Total, by Classes.	Total, by Terms.	Whole number taught.
-	00	5,1	100
2	26   12		
	3		
,	0		
	7	48	
	100		11
14	30		
)	10		
18	39	79	
1	1		
	11		
0.000			
18	25	107	
)	18	18 39 11 16 61 4 10	18 39 79 11 16 61 4 10

It would gratify me to give you the details of the work done by the several classes named in the preceding view; but it would occupy too much of your valuable time. For the methods of teaching pursued in this department, I refer you to my former

The experience of each succeeding year confirms the wisdom of the plan adopted by this department at the first. Elaborate treatises of the different subjects studied are adopted as text-books, and selections made therefrom according to the ability of the student and the time devoted to each study. By this method, under judicious instruction, every member of the class is furnished full much more than they would were the textbook an abridgment. Thoroughness consists in doing well what is attempted, be it the whole of an abridged treatise or a portion of one more extensive.

It is said by some that our course in mathematics is too restricted, and that relatively mathematics does not occupy sufficient prominence in our present curriculum. The first objection applies with equal force to the whole curriculum, as it now stands. To the second objection I will simply state that about one-fourth of the time of our present course is given to mathematical studies. This will appear if we admit book-keeping to be a part of arithmetic, and if we consider that at least one-half of the time given to drawing is devoted to practical geometry, which is really the basis of industrial drawing. The benefit of instruction in geometrical drawing was strikingly illustrated in the case of the class which completed our course in mathematics last term. This class, having been under Mr. Walters' instruction in geometrical drawing, did at least onethird more work in the time allotted to the reading matter to which the most of our ted.—Exchange.

geometry, trigonometry and surveying than any previous class.

Again, it is often objected that we give only one term in algebra. We do not profess to go over the whole of algebra, but only what is needed for the subsequent part of the course. In demonstrating the theorems in geometry and trigonometry, we follow the analytical method, and thus the student is actually using algebra through all his subsequent course in mathematics. As an evidence that proficiency in algebra is acquired here, I will mention the fact that students who have obtained their knowledge of mathematics in this College are now privately reading without difficulty Olney's General Geometry.

As the course of study is now arranged, algebra is the only branch of higher mathematics inserted in the Woman's Course. The young ladies are required to take algebra, but are not allowed to study geometry, etc., etc. I respectfully recommend that algebra be made optional to young ladies, and also that young ladies who desire it may be allowed to take the higher mathematics in the Farmer's Course, at the discretion of the Faculty.

Before the course of study was cut down from six to four years, one term each was given to mechanics and to civil engineering. During the spring term of 1877, I had a class in the latter study. After completing Mahan's Treatise the class were required to write papers on several subjects which had been discussed. One of these papers, on "Roads in Kansas," prepared by Wm. Ulrich, was published in the Industrialist and copied quite extensively by the press of

One year ago English Literature was made one of the studies in the Woman's Course. At the beginning of the last term, a class took up this study. It numbered second year and seven young gentlemen who obtained permission to take English Literature as an extra study. The text-book used was Collier's. The College library furnished several valuable books for reference, among them Chamber's Cyclopedia. From the first the class without exception manifested great interest in the study. As the microscope reveals to the student of natural history a world of wonders unknown by him before, so during the last term, by the study of English Literature, there was opened up to the minds of the young people comprising the class referred to, a world of literature, the existence of which they had hitherto been scarcely conscious. They were introduced to the great English and American writers who have bequeathed to the present the intellectual wealth of the past To some of the class the names of many of these great writers were unknown. Very few had read much of what is usually termed the English classics. This need not surprise us when we reflect that libraries are comparatively scarce in Kansas, and that

young people have access is that furnished at the post-offices and the news-stands. I believe that the work done last term contributed very much to elevate the taste of those comprising the class, and also to decide their future reading.

In all of my classes in English, exercises in composition are required of each pupil weekly. Occasionally we have a class exercise in declamation; but at present no provision is made for even class-room exercises in composition and declamation, except at the option of the teacher. I respectfully suggest that elocution be inserted in the course of study, and that provision be made for instruction therein.

#### Comfort at Labor.

"The merciful man is merciful to his beast." Years ago when shades were first introduced for shielding the heads of horses from the intense rays of the sun, they were laughed at by many. Now they are in almost universal use by intelligent horsemen in the cities, and should be by those in the country, particularly when the pace is slow or the teams are obliged to stand sometimes at rest. The reasons are too obvious to need

explanation.

Nowadays, shelter from the sun for the drivers of farm implements during having and harvesting is by no means rare. They will continue to be more used until they become common. There is no objection to the operator being made as comfortable as possible; and when the lack of this comfort often results in sunstroke or other sudden death, the humanity and necessity of using all feasible means against such danger is apparent. When a person is in active exercise and motion, there is comparatively little danger. He sweats freely, and thus the system is kept cool, and the circulation remains healthy. There is no objection to a man riding on a sulky plow if he can do as good work as with a "walking plow." There is no objection to an individual using a cover to shield him from the sun while riding to rake, mow or reap, or while standing at the threshing machine. Fortunately, under our torrid suns during harvest, the person taking active exercise does not so work, and the more capable accomplish twenty-five, eighteen young ladies of the much need this shelter, and for the reason as given above.

Therefore, if you can make yourself comfortable, or your teams so, while doing your work, do it by all means, and without regard to the objections of that class who do not keep themselves posted upon what is new in agriculture, who do not take an agricultural paper, whose art is solely that of their forefathers, and who sneer at everything agricultural in print as book farming. -Prairie Farmer.

By an ingenious instrument, the Royal Observatory, Greenwich, has been able to register the exact number of hours of sunshine during last year. In the twelve months ending February 10th, the sun was above the horizon at London 4,554 hours; the amount of sunshine during this time, was only 1286.1 hours, that is, the Londoners have had only 29 per cent of the sunshine they were entitled to, according to the astronomers. The winter months received very little - January only 35 hours, February only 40 hours, December only 27 hours; in January and February there were 14 days each in which there was no sunshine, and in December 16 days. Although November had only 5 hours of sunshine, there were only 7 days when it did not have some. June, July, and August had only one day each when no sunshine was permit-

SATURDAY, JULY 20, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

#### Worth More.

The majority of men who, after ten years of semi-starvation in a "learned profession," find themselves and their little ones facing the prospect of whole starvation, could better increase their income by farming, had they the requisite skill, than in any other way. There are men in every community who remain in a profession, not because they are fitted for it, or because they like it, but only because they can do nothing else. This condition of things is a necessary result of the convergence of our whole educational machinery, from the common school to the university, upon the professions. They must be overcrowded. And it is equally certain that until a boy has chosen his occupation, it is better for him to take the farmer's course in a good agricultural college than to take the aimless course of a literary institution, and find himself, on graduation day, "with the best education his country affords, and ---- unable to make a living!"

In proof of this statement, take, as an illustration, the case of a boy who is able to earn, including boarding, thirty dollars a month as a farm laborer. His wages are equal to the interest on \$3,600, at the rate of ten per cent. In other words, what he knows and can do is worth as much to him as \$3,600 would be if he did nothing. He spends four years at a literary college. How much has he increased his capital? Very few of its graduates can go on the market and at once command situations at more than thirty dollars per month. Usually, two or three years must then be spent in professional schools, and one, two or five years more in waiting for a practice that will pay one hundred dollars a month. Or, if the graduate enters commercial life, from one to three years are spent in learning the business. Suppose, instead, that he spends the four years in an industrial college. graduation, he can command, in the market, sixty dollars per month as the foreman of a grain or cattle farm, or on his own homesead. Mechanics, printers, druggists and operators can do the same. The student has doubled his capital, or has made \$3,600, when before he had made nothing that was in shape to use. And with the same frugality, industry and shrewdness which the professional graduate must exercise, he will, at any subsequent period, earn more with the same labor. In other words, his industrial education is worth more, costs less, and is more available. It is well for men to look the educational question squarely in the face, and to substitute common sense for traditional and groundless sentimentality.

# Practical Agriculture.

The teacher of an established science necessarily views it from the standpoint of investigation or inductive discovery, and so presents its facts and theories, directing them to the wants of the farmer as best he may. The teacher of practical agriculture must view the same science from the wholly different standpoint of "Will it pay the farmer?" The conclusions reached by the two men will sometimes clash, for trial frequently shows that a proven fact of one science is so modified by an equally proven fact of another science as to be relatively valueless in combination. This experience is not confined to agriculture. The keenest experts of the patent office, after close study of a working model, and upon seemingly equal diploma (and there are many such),-

the best scientific grounds, frequently decide the proposed application of a given principle to be correct and valuable; whereas, the construction of the machine shows that it either won't work at all, or won't work profitably. And if such be the fact in the science of mechanics, the principles of which are mathematically demonstrable and easily traced in a combination, how much more is it apt to be the fact when we attempt to deal with the subtle forces of light, heat and moisture, hidden in mysterious combinations and producing fantastic results? No science used by man more imperatively demands the constant test of actual experience. The iron used by the blacksmith in every State is practically the same, but the soil which the farmer in Kansas works is not practically the same as that of Ohio or Maine, and sometimes the same farm has as many different soils as acres. The flame and tools of the smith are the same everywhere, but how great are the diversities of the warmth and rains which build plants and furnish fruits!

It is frequently asserted that a boy will become more skilful in the practice of agriculture if kept at work on the home farm, under his father's guidance, provided the latter be a farmer, than if placed under the instruction of a professor of practical agririculture; hence, that there is no necessity for professional teaching.

Evidently, this depends upon several things. If the father has a better knowledge of the scientific principles actually used in agriculture; if he can apply these principles more successfully; if he has better apparatus for illustrating both the principles and their applications, in the shape of a greater variety of soils, of the best implements, cultures, crops, cattle and fruits; if he is a better teacher; and if he will fully devote himself and his farm to the task of teaching the boy what to do and what not to do as a practical farmer, and of drilling him in the best ways of doing a desirable thing and of preventing an undesirable thing,certainly such a farmer should keep his boy at home, unless the latter is deficient in that branch of an education given by the literary departments of the college.

But is this fortunate combination of essential advantages often found? On the one hand, many capable farmers are not able to buy the necessary apparatus. On the other, many rich farmers have not the requisite scientific knowledge. And he who possesses willing to teach his own son, is usually not so willing to follow the business of teaching other men's sons, simply because farming pays better than teaching. These advantages should be provided by agricultural colleges, and should be used in giving the best instruction and drill in the practice of agriculture. Whether they really are so provided and used is another question, but evidently they can be.

# What are the Facts?

The system of female education in the United States has made a fair trial of the effort to develop the girl into a mental man. In common and graded schools, in academies, seminaries and female colleges, the same course of study has been adopted that is provided for the education of boys. And those institutions which most plume themselves upon their excellence, triumphantly cite the fact that their curriculum is that of Harvard, Yale or Princeton. What are the results? Take their graduate who has studied as diligently, learned as rapidly, and assimilated as thoroughly as has the male graduate, and who has as fairly earned an

what use does she make of the knowledge gained and the strengh acquired? At the end of ten years is she found in the same profession as he?. At the end of twenty years has she attained the same position? At the end of thirty years has she proven herself a successful competitor in doing the same work as he?

Or if, impelled by a woman's promptings, she has performed woman's work, has she, on that line attained the same relative eminence? Is her husband as much happier than other husbands as her education was "better" than that of other wives? Are her children healthier than other children? Are her dishes more toothsome, her rooms more attractive, and, which is a fairer as well as more important test, is her home warmer and brighter with the glow of wifely love, of motherly tenderness, of all that constitutes the radiance of womanliness? I so, where are the proofs; just such proofs as can be culled from any university catalogue of alumni? If this education is really worth anything, it will produce effects in proportion to its worth. If it is as valuable to the woman as to the man it will produce similar effects. And if it have only a tenth of the value which its advocates claim, certainly they should be able to cite the facts, specific and visible facts, not general twad-

On the other hand, is any of the connubial discontent, more prevalent in these than other days, fairly chargeable to this system? Is any of the incompetency of body, incongruity of temper, or disregard of what was formerly considered the sacredness of the marriage vow, so frequently plead in our divorce courts, fairly attributable to it as an ultimate cause? How many of the germs of that decay which is visibly eating out the heart of domesticity were planted by it? Usually, the daughters of the wealthier classes have received this education in its purest form; and usually they have married those of equal affluence. Will the attending physicians testify that their wifely work is proportionately better done, and that a greater degree of motherly and womanly perfection is the rule of their homes?

Would that the veil could be lifted long enough for us to determine the effects of this education, by a comparison of the lives of its pupils with those not its pupils, that we might really know how much or how little we are indebted to it for the physical both the means and the knowledge, however weakness, domestic incapacity, anguish, disease and death of wives; for the disappointment, sorrow, dissipation, adultery and maladies of husbands; for the enfeebled constitutions, stunted minds, frozen affections, mangled and distorted souls of children, which, fresh from the arms of the All Father, bright in promise and glorious in posssibilities, have been murdered by the slow torture of womanly incompetence or neglect. Most admirable ladies and excellent brethren, let us gently press the spotless cambric to our lips, and turn from thoughts so unpleasant, and on no account let us enquire of physicians for the facts!

> SEVERAL manufacturers of agricultural implements are attempting to construct a corn-husking machine." If their reports are not over enthusiastic, we will soon

> THE highest average salary to male teachers in the United States, \$120 a month, is paid in the District of Columbia. Female teachers receive the highest wages in Arizona, \$90 per month. The highest salary paid to any educator in the United States, so far as we know, is \$8,000. President Barnard, of Columbia College, New York, is its happy receiver.

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This journal has received the warm approval of
most of the scientific periodicals of the country,
such as Popular Science Monthly, Harper's Weekly,
New Remedies, American Naturalist, Science Observer,
to the and numbers among its contributors some New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific subjects.

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

to their reliability and their popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible. manner possible.

SATURDAY, JULY 20, 1878.

Such heat we do hate.

The Spirit of Kansas publishes several extracts from A. N. Godfrey's oration, which appeared in this paper last week.

President Anderson and family returned to Junction City last Tuesday afternoon. He will be in Manhattan next week.

We acknowledge calls this week from Miss Ida Johnson, of Topeka, and Misses Annie Pillsbury, Jennie Coe and Cora Snow, of Manhattan.

The heat drove the workmen from the new building last Saturday afternoon, and the rain this week has kept them from working two or three

Mrs. Prof. Platt started on an extended visit East last Wednesday. She will be absent two months, and will "take in" Baltimore and other large cities before returning.

One of Mr. Winne's horses died very suddenly last Tuesday afternoon, and the College farm lost a mule in the same manner that evening. It is presumed that the extreme heat was the cause of

The Normal Institute Record, published daily during the session of the Ottawa County Institute, at Minneapolis, has found its way to our table. It is of our own size, ably edited and well gotten up. Good morning!

Somebody pokes fun at us for calling this paper the INDUCE-TRIAL-IST last week. If he will again read the article which contained the "funny name," he will see that we tried to induce him to give the "Kansan Abroad" a trial. That's the reason, sir; and now you do as we advised you. It costs \$1.25, post-paid.

The Lawrence Home Journal thus chuckles over the fate of the innocent maple worm: "The maple worms can't stand the hot sun. Whenever they stray out of the shade into the sunlight, they first squirm, then dash, then thresh, then roll over, get black in the face, and turn their dozen little toes up to the daisies."

We are in receipt of a copy of the Report of the United States Commissioner of Education for the year 1876. As the volume contains about twelve hundred pages of close print, we have not been able to do more than give it a hasty examination; but we venture to say that it is the best report yet issued, and a credit to the Commissioner. We shall often refer to its pages.

Mrs. E. B. Purcell very handsomely entertained her many friends at her residence on Thursday evening. The verandas and spacious parlors were filled with both old and young. The best music we ever heard in Manhattan was furnished by the consolidated string band, consisting of eleven instruments. Refreshments, for the benefit of the Presbyterian church, were served up during the evening.

The LaCrosse Eagle crows over the Blade in

Four little editors got upon a spree, One clawed another and then there were three. Three little editors in an awful stew,

One got upon his ear and then there were two. Two little editors having lots of fun. The big one ate the small one and there was one.

One little editor fooling with his *Blade*, Along came an *Eagle* and knocked him in the

The Department of the Interior will accept our thanks for a set of geological maps of the State of Colorado. The maps are far superior to anything of the kind we ever saw, except perhaps those of the Dufour survey of Switzerland, which are considered the superlative of cartography. These distributions of educational works by the different departments are like refreshing rain to a thirsty vegetation.

The heat has been very excessive the past week all over the United States. Last Safurday was the hottest day this year, the thermometer indicating over 100° a good part of the day. A startling number of sunstrokes have been reported in the large cities during the week. The rain which has been falling at intervals the last two or three days, has cooled the atmosphere but little. Oh, for more ice and stronger Kansas breezes!

The following is contained in a letter recently received from George F. Thompson, of Baltimore, Cowley county: "I have been receiving the Indus-TRIALIST for some time, and am greatly delighted with it. Every new copy seems better than the others. The people in this part all like it - those that care anything for educational affairs. Accept my thanks for the paper. I hope it will be the means of starting many Kansas boys to the College, as it has me."

Three young men came very nearly drowning in the Wild Cat last Wednesday afternoon. They were bathing, when one was taken with cramp in the arms and called for assistance. In the attempt to rescue him, the other two became exhausted, but by tremendous effort all worked out of the current and reached shore. A heavy rain had caused the creek to rise nearly four feet while they were in it, and this only added to their danger. It was a very narrow escape, indeed. The parties were Arthur Blain, Gus Platt and Clarence

#### ENTERPRISE ITEMS.

From April 6th to June 19th, 6,318 ponies were driven from Texas to Kansas.

The amount of wheat to be marketed at Wichita this season is estimated at 3,000,000 bushels.

Umbrellas have been in as much demand the past week as if it had rained nearly all the time. s ot, you know.

These moonlight nights are pretty generally utilized by the young folks for boat riding. The only drawback to the amusement is the lack of

Jeff D. Brown, who has been threshing Mrs. Houston's wheat, informs us that the yield was an average of thirty-five bushels per acre. There are a great many fields in Riley county that will yield that well this year.

#### NATIONALIST ITEMS.

The town clock has arrived.

Blackberries are selling at six cents a quart. Five head of thoroughbred cattle were shipped

a fortnight ago, from Durham Park to England One of them brought \$12,000. Shermie Hoyt treats a pet toad to maple worms

and it will at once eat a dozen or more. The effort made to destroy the moth by the birds and toads, have saved the foliage of the maple trees

The way our little friend reads his Bible lesson "And the Lord went up into the mountain, and spake unto Moses in a loud voice, saying, 'Moses, come up here; and Moses was thundering mad and hollered up, 'I don't have to.'" He will doubtless read better when he gets older.

A grand national temperance camp meeting will be held under the auspices of the Kansas State Temperance Union, at Bismarck grove, near Lawrence, Kan., from August 30th to Sept. 9th, 1878. The grove is one of the finest in the entire west, and ample preparation will be made for the com-fortable accommodation of 50,000 persons. It is intended to make this meeting in every respect truely national, the object being not only to more perfectly unite in sympathy and work the friends of temperance throughout the United States, but to send out from this meeting an influence in favor of temperance that will be felt throughout the entire country. All who can do so, should arrange to attend a part if not all the time.

A. A. Stewart, publisher of the Industrialist, courted a Miss Winne as long as he could without marrying, her, and then, heartless fellow, broke the engagement and-married her.-Hiawatha Her-

"It takes a good deal of rushing around to maintain the dignity of a paper of this size," is what the editor of the Industrialist said about going to Put-in-Bay; and if "rushing around" will at all add to the dignity of a paper, surely the *Hatchet*, together with several other Kansas newspapers, will take a sudden rise.—Emporia Hatchet.

# TOPEKA CALENDAR ITEMS.

The State Superintendent has decided that school-district orders bear interest when endorsed by the treasurer, "Not paid for want of funds."

Over one thousand teachers in the State of Kansas have repeatedly expressed the opinion that Felter's Primary Arithmetic is the best book they

We have noticed that in those counties where the Calcular and other educational papers have been freely circulated among district officers and teachers, there has been no reduction of wages. Teachers teach better, patrons are more interested, and believe that good pay only secures efficient

The list of premiums offered at the Barton County Fair for excellence in educational work, is deserving of imitation by the older counties Is it not as fitting that we encourage superior intellectual culture among our children, as superior agricultural products among our population, by a scheme of judicious premiums?

The demand for our State map of Kansas is constantly increasing. Teachers, farmers, travelers and school officers are ordering them for them-selves and their friends. Not only single copies, but three, six or a dozen are often sent to one address. Sent in a mailing tube, post-paid, for a ten-cent postage stamp; or a dozen for \$1. County maps, 25 copies for 25 cents.

# DIRECTIONS TO APPLICANTS.

# TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he

will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as posssble.

GRADES. Both the Literary and Industrial recitations are graded dally upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent art, Manhattan.

pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in

the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

#### RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

### EXPENSES.

There are no charges whatever for enrollment attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the and the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students 'desiring to "board themselves" can do so at .from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

#### LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.-Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. - When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

# AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire suffi-cient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

# RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

# 3. Penalty: "Leave!"

# PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Depart-ment, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Educa-tion. Price, 75 cents a year. Address A. A. Stew-

Spring Term 1878.—Began Thursday, Jan. 3d, and will close Wednesday, May 22d.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

#### TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

#### LITERARY SOCIETIES:

ALPHA BETA. - Chartered, December 26th, 1870. Meets in College building every Friday at 2 P. M. Ladies admitted. New students cordially invited to attend. George L. Platt, President. MISS ESTELLE BOUTON, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. LEWIS A. SALTER, President.

TULLY SCOTT, Secretary.

#### RAILROAD TIME-TABLE.

### KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going East...... 12: 20 P. M.

#### Going West...... 4:10 P. M. FREIGHT ARRIVES.

Going East...... 2:55 P. M., and 10:30 P. M. Going West...... 6:20 A. M., and 9:00 A. M.

Passengers with the above-named trains.

GEO. C. WILDER, Agent. Passengers with tickets are carried on any of

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruc-tion and drill by an experienced operator.

S. Roberts, M. D .- Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Yocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reck-oned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Dress-Making and Millinery.—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the highest breeding. Address E, M. Shelton, Manhattan,

Rarming for Profit.—Special courses in Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

anhattan Bank.—E. B. Purceil, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

athematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, machanic or hydroxy. benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Board of Regents.

S. M. WOOD, President, Elmdale,
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FACULTY. FACULTY.

J. A. ANDERSON, President, Prof. Political Economy.
M. L. WARD, Prof. Mathematics and English.
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J. E. PLATT, Prof. Elem'y English, Mathematics.
JNO. D. WALTERS, Teacher Industrial Drawing.
HON. D. J. BREWER, Lecturer on Practical Law.
A. TODD, Sup't Mechanical Department.
A. STEWART Sup't Printing Department. A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the head of the control of the least it teachers and upon the thorough. the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION. Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathintonia. ematics are not taught. But it will be noticed in the following course that so soon as the pupil ac-quires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

# FARMER'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology. 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Practical Geometry. 4. Horticul., Landscape 5. Organic, Analytical 6. Practical Surveying.	1. Physiolo 2. Rhetoric 3. Algebra 4. Practica 5. Physics. 6. Industri	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arithmetic, Book-keeping. 6. U.S. History, Industrial Drawing.

WOMAN'S EDUCATION.

one-half of our students are females. and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

# WOMAN'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Farm Economy, Special Hygiene 2. Geology, Mineralogy. 3. Polit'l Economy, Practical Law 4. Zoology. 5. Phys'c'l Geography, Meteorology 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Industrial Drawing. 4. Horticul, Landscape Gardening 5. Organic, Household Chemistry. 6. Household Economy.	1. Physiology. 2. Rhetoric. 3. Algebra. 4. English Literature. 5. Physics. 6. Industrial Drawing.	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arith., Book-keeping. 6. U.S. History, Industrial Drawing

# MECHANIC'S EDUCATION.

MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS. Having knowledge in the head is one thing Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations of the property in the carpet and provided in the control of the property in the carpet and provided in the carpet and carpet tions. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent: FOR FEMALE STUDENTS.

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

Printing.
Telegraphy.
Scroll-sawing. Carving.
Engraving.
Photography.
Instrumental Music.

Dress-making.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

### DEPARTMENTS OF INSTRUCTION

### DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE. Second Year:—General principles of breeding; history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the play upon soil and subsoil; principles of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage;

how to lay out; a system of drains; house drain-

age; sewerage. Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; general advantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage manure, and extermination of weeds; pasturage and production of grain and forage crops; ma-nures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY.

Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

# DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and systematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practical drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management plants; improvement of varieties; management of commercial and farm nursery; modes of pruning; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

#### CHEMICAL DEPARTMENT. PHYSICS.

This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book, Ganot

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to their history, properties, manufacture, and especially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY. This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboraCHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY.

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity laws of storms; rain, snow and atmospheric elec tricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallography, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composition of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of fruits, etc.

SPECIAL COURSES Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE.

Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called lanintelligent in handling the machinery called language, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the corretary attention ally found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the stu-

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants

Letters: Form; power; rules for spelling, drill.
Words: Signification, properties, modifications,
variations, relation and dependence.
Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of com-positions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and penman-

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter the printing class, the printing-office being the work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS .- The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the topics included are:

Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech.

Stems: Their derivation; their offices and properties; their relation to other parts of words.

Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and to those sources; explanation of the laws and principles governing their use along with stems. Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of

the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivers the class-room exercise, but reduces and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition. ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties

ing and remembrance of names, the properties and offices of the several classes of words entering and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the sevmutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT. Figures and lines, like words, are only instru-ments with which to convey ideas, or perform operations that cannot be easily done without ments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given operations are performed, but because they can neither add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the stu-The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops, construction of houses, sales of produce, and investment of capital, involve all the produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it Acquiracy of calculations. and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of eats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult thing.

ARITHMETIC AND BOOK-KEEPING
Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

Algebra is included in the course as a preparation for the study of Surveying.

DRAWING. The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they classes make a far greater use of lines than they do of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Department.

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student willful in the application of lines to the field by skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with of the engineer is accordingly supported to the engineer is accordingly supported to the mathematical principles and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to woman.

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household econ-omy;" such as butter and cheese-making, dairy omy;" such as butter and cheese-making, darly management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

GARDENING is included in Practical Horticulture. See heading, "Landscape Gardening."

HOUSEHOLD CHEMISTRY. See heading, "Househeld Chemistry."

HOUSEHOLD CHEMISTRY. See heading, "Household Chemistry."

HOUSEHOLD ECONOMY

Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash

Published every Saturday by the PRINTING DEPARTMENT

# KANSAS STATE AGRICULTURAL COLLEGE.

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Address A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION

Not the least of the things of which Kansas has Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. fully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. tions, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as

1.13=	1.13
0.49	
0.55	
0.73 =	1.7
59.13	
14.63	
13.89	
0.51-	07 1
9.01-	31.1
	0.00
	1.13= 0.43 0.55 0.73= 59.13 14.63 13.89 9.51= 1

# AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. ENDOWMENT.

The endowment received from the United States The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The analysis in the sale of the sale of the securities in hand amounted to \$238,101.28 by last report. The analysis in the sale of the sale nual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway with its connecting lines gives speeds conway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by guage; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thor-ough instruction and laboratorial or field drill in ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving and music.

#### Department of Elementary English and Mathematics.

Report of Prof. J. E. Platt for 1877-8.

To the Board of Regents of the State Agricultural College:

Gentlemen: - Permit me to submit the following report of the Department of Elementary English and Mathematics, covering the time since January 1st, 1877, including three college terms.

Eighty-six students have attended the class in Drill in English. The course of instruction in this class has been shaped, not so much to prepare persons for teachers, or to pass an examination in technical grammar, as to qualify them to use the language with accuracy and facility, as it may be needed in common life. It is believed that it is of more practical advantage to a laboring man to have some thoughts upon a subject that may be presented to him, and to be able to express those thoughts, either by word of mouth or upon paper, with accuracy and ease, and according to the established usage of the day, than it is to be able to tell the full formula of parsing a certain infinitive verb in a sentence, agreeable to the plan of some of our modern grammarians.

The course has embraced a drill in penmanship, spelling, elementary sounds, reading, capitalization, construction and analysis of sentences, the elements which enter into their composition, punctuation, and the expression of original thoughts upon paper. The latter topic, with the criticism of the same, occupies from one-third to one-half teach one division of the class. the time of the whole course.

Probably a greater portion of time than heretofore should be spent in elocutionary exercises. If our students are expected to address their fellow-citizens on various occasions, they should be so drilled in the art voluntarily availed themselves of the privi- artistical and mechanical pursuit. A good of oratory as not to be awkward in their lege of entering these classes; and such a draughtsman always commands employment, positions or motions while speaking, or lack- degree of improvement was made that they and stands upon the broad road of future ing in any element which goes to make up an effective speaker.

# ARITHMETIC.

One hundred and seventeen students have received a drill in this study. So many of the young men of this State are allowed the privileges of this institution who from various causes have had but limited opportunities for a common school education, that it is found necessary to begin well toward the foundation. Considerable time has been occupied in securing accuracy, connected with some degree of speed and neatness, in the execution of the simple rules.

It has been the effort in giving this drill to place the student upon an independent train of thought in the solution of any question which he is liable to meet in ordinary business life. Many problems outside of the text-book have been proposed. Measuring lines and rules have been given the students, and they have been required to compute the cost of flooring, carpeting, plasof roofing them with shingles; to ascertain An advanced class of ten male students has

wood, of acres in a piece of land, of bushels the corn-crib will contain, and of grain in the different bins on the college farm; and to compute the amount due on notes given by different members of the class, on which partial payments have been made; and a host of other examples of like import, endeavoring to bring the study as near to real business as possible.

### BOOK-KEEPING.

One hundred and thirty-two students have received instruction in this branch of study. It has been the object to so acquaint them with the science that they shall practice it in whatever vocation in life they shall engage, and particularly to familiarize them with those forms of recording business transactions which are especially adapted to the farmer or mechanic. Instruction has also been given in the full form of double-entry, and, considering the time spent upon it, many students have made very creditable proficiency in the practice of it.

### UNITED STATES HISTORY.

Seventy-nine students have attended this class. Previous to the last year, this study has been only in the woman's course; and it is to my mind a great improvement that it has been given a place in the general course, believing as I do that it has equal importance for gentlemen and ladies. The class at the first of the last term was so large that it seemed wise to divide it into two sections; and as my time was fully occupied in other classes, Prof. Shelton kindly consented to

# VOCAL MUSIC.

two classes, giving each class two lessons a were able to supply the music on the occasion of the last two commencement exercises of the college.

# Department of Industrial Drawing.

Report of Prof. J. D. Walters for 1877-8.

To the Board of Regents of the Kansas State Agricultural College: GENTLEMEN: -Allow me to submit the

following report of the work and instruction of the Department of Industrial Drawing.

This report covers the time from the first day of February, 1877, when I took charge of the department, to the close of the spring term, 1878. I have taught five classes per day during that time, a short period at the beginning of the fall term excepted. The number of students enrolled for daily instruction in my classes has ranged between forty-four and ninety-six.

The system of Prof. Walter Smith, Art Director of Massachusetts, has been followed closely through the grades of freetering and papering certain rooms; to tell hand drawing in the flat, geometrical conthe cost of erecting the walls of buildings, struction, perspective and object drawing.

the numbor of cords in different piles of received a course of instruction in topographical drawing and the principles of mechanical and isometrical projection. Three students have in addition received instruction in the principles of shades, shadows and landscape drawing. Believing geometrical construction and mechanical projection to be the foundation of industrial drawing, the drill in these two branches has been as thorough as possible, without neglecting other fields.

The advancement made by the students has been very satisfactory, considering that, of all the students received at the institution, hardly five per cent had ever been given any instruction in this study before. Many, too, when entering my classes, seemed to be prepossessed by a kind of prejudice against drawing, which could be counteracted only by much and careful labor on the part of the teacher. Permit me to say, however, that I have been successful even in this direction.

There is perhaps no study in the curriculums of our public schools and industrial colleges, which is to-day so much neglected as drawing, and no study which in the near future will take such a prominent position. In many European countries, from one-fifth to one-half of the school time is now devoted to drawing, and the manufacturing communities are watching each other with significant jealously in regard to this highly promising reform. The education of the eye is certainly of infinite value, and the hand once master of the arts of design will handle more skillfully all other tools. He who masters drawing commands a dozen profes-Believing it to be the wish of the Board, sions, and through all the changes of for-I have continued to teach vocal music, in tune, independence and self-reliance are never lost. A knowledge of drawing is week. One hundred and thirty students always a livelihood. It is the key to every progress. And who will estimate the moral influence of a systematic study of the beau-

> The department is greatly in need of some additional models, for the purpose of illustrating the most frequent architectural terms. I respectfully request that an appropriation of \$300 be secured for this department, if possible.

Those who are the most graceful in their movements are those who are the most nat-Artificial habits, affectation, constraint, destroy nature's attempt at originality and repose. When Sir Joshua Reynolds desired to put upon canvas attitudes most characterized by grace, he selected children as models. You will hardly see a group of them at play that does not exhibit more ease and gracefulness of action than is to be found in the salons of fashion.

Among the curiosities of grafting by the ancients, Pliny gives a graphic account of a grafted tree which was covered with all kinds of fruit, nuts, berries, grapes, pears, figs and pomegranates, but the tree did not live long. It is to be supposed that some of the grafts lived a still shorter time.

CALIFORNIA is cultivating coffee.

SATURDAY, JULY 27, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY.

THE Illinois State Teachers' Association, at its last meeting, formally resolved that "it again endorses with emphasis and without equivocation the co-educational system of schools, primary, secondary and university, now in successful operation in this State, believing that the true interests, physical, mental and moral, of both sexes are far better observed by this plan than by the system of separate instruction." This resolution was passed to exhibit the unanimous sentiment of a profession that certainly knows, more than any other, of the practical working of the system, now again so stupidly attacked by certain parties.

#### Educational Statistics.

From the report of Gen. Eaton, United States Commissioner of Education, we learn that there are over fourteen and a quarter millions of children of school age in our country, of whom not quite nine millions are enrolled in public schools. They are under the charge of 273,421 teachers. Massachusetts expends per capita of the pupils enrolled \$24.08, and stands at the head of the column in this respect. The District of Columbia comes next, with \$17.95; and California next, with \$17.37. Kansas expends \$8.28, and Georgia shines off with \$2.42.

Of higher institutions of learning, there are in the United States 113 preparatories, 1,229 academies (199 of these are for boys only, 292 for girls only, and the rest are mixed). Of normal schools there are 151; of commercial colleges, 356; and of institutes for the superior instruction of woman, about 140. There are 45 colleges of science (agriculture, mining or engineering) which are endowed by the government, and 31 which are without endowment. Of the endowed colleges, 22 are connected with other institutions; the rest, like our Agricultural College, are not. Besides these scientific colleges, there are 36 special industrial schools and 30 art institutes to supply the demand for technical or practical education. Master degrees were conferred by 287 universities and colleges, and hundreds of others conferred almost any degree. Only 76 public libraries of more than 300 volumes are reported. There are 15 State is now more largely represented by adult infant asylums, 20 soldiers' orphan homes, 188 orphan asylums, 29 institutions for the blind, and 43 for the deaf and dumb. Of museums of art there are 31, and of natural history, 48. There are only 151 well organized kindergartens mentioned.

# Liberal and Practical Education.

Words, like trees, are the product of various elements, and often of many centuries. Liberal is a case in point. The Roman slave was subjected to a bondage compared with which the worst form of American slavery might be deemed liberty. A man who was "no slave" was called "liber." In those days more than in these, manual labor was the chief service of the slave; hence, the condition of the "liber" was, in a general sense, a condition of freedom from manual labor. During succeeding centuries, but still under tyrannies, the French liberal and the English liberal retained the provided for the American farmer and meleading signification of general freedom from chanic. For if any liber, or "no slave," that physical toil which is the warp and is entitled to a liber-al education, it is the woof of a slave's daily life. Early English authors designate by it "that which befits a 'gentle'-man" as distinguished from a Practice signifies "actual doing, or the manual laborer, and that it yet expresses the thing done; that is, the regularly doing, or

original meaning is evident from its present use as applied to the arts. Webster draws the line between the liberal and the mechanic or industrial arts in these words: "The liberal arts are such as depend more on the exertion of the mind than on the labor of the hands; and regard amusement, curiosity or intellectual improvement rather than the necessity of subsistence, or manual

A glance at history will show how pertinently this word described education. The Reformation exerted a resistless influence upon the scope and direction of education. The new order of things forced the clergy, who had previously constituted "the learned class," to the acquirement of greater information, especially concerning the ancient languages and beliefs. The growth of constitutional governments necessitated the careful education of men skilled in the principles and precedents of law. Increased knowledge compelled a corresponding education of physicians, of scientists, and, as indispensable to all, of competent teachers. These vocations compose what are yet commonly known as "the professions." It certainly is emphatically true of each of them, that the labor required in their practice is mental. As compared with the farmer, the preacher, lawyer or doctor is relatively exempt from physical toil. Hence, an education designed for these professions would naturally be called "liberal," and until quite recently no other pursuits have been deemed worthy of the educator's notice. It is in this light, glinted to us by the billows of many centuries, that we are to read Webster's definition of liberal, i. e., "Befitting a freeman or gentleman, as liberal arts or studies; liberal education, that is, such as is extended beyond the practical necessities

The debates in Congress upon the agricultural college bill, everywhere show that both its friends and enemies used the phrase "liberal education" in the proper and accepted sense. A single extract from the speech of Senator Harlan, of Iowa, in reply to Senator Mason, of Virginia, will suffice

"There may be those who are not disposed to give the means for the develop ment of the minds of the masses; those whose interest it is that the laboring men of the country should be ignorant, should be uneducated and dependent, that their sweat and toil may be used to advance the interests and promote the happiness of those more highly educated and refined. It may be that it is a blessing to Virginia that she white people who are unable to read and write, in proportion to her population, than any other State in the Union. It is a blessing, however, the people of my State do not covet. They prefer that the mind of the laborer be developed; that the intellect of the man who labors and sweats for his own bread should be more highly endowed, in order that that class of people may become their own representatives, even in the legislative halls of the nation." [Feb. 1, 1859.]

There can be no doubt that by the use of the word "liberal" Congress marked out the broadest pathway to mental power and culture. Whatever long experience had proven to be valuable in the education of the professional classes, Congress designed that agricultural colleges should use in the education of the industrial classes. It was eminently fitting that the widest scope of study, the best appliances, and the most competent teaching enjoyed by the sons of the English aristocracy, should be freely son of American liber-ty.

Practical means "pertaining to practice."

the thing regularly done." The Greek verb prasso meant "to do, to work; to follow a business, trade." The adjective praktikos, "fit or disposed for doing or performing; fit for business, business-like;" hence, our word practical, "that which belongs to the actual doing." It matters little in this connection what particular shade of its meaning is taken. We may say with Webster, that a practical education is one "capable of being turned to use or account; useful in distinction from ideal or theoretical." And since the sciences as taught in a liberal education are but collections of ideas or theories, a practical education must be quite distinct therefrom; or we may say that such an education, like practical skill, is one "derived from actual doing." All of this simply amounts to saying that a practical education, as prescribed by the act, is one that "fits a person for actually doing business," be the kind of business what it may.

We have already noted the influence of the Reformation upon education. A glance at the causes which impelled Congress to require for the industrial classes a practical as well as a liberal education, will show yet more clearly what it meant thereby. These causes are to be found in the magnificent progress of American invention. They spring from the same sources that have filled the patent office with models, and the world with machinery. And if any elements may rightfully mold and energize the processes of education, certainly may those which, since the days of Franklin and Fulton, have placed Americans in the foremost ranks of the world's appliers of science. The nation of plows and reapers; of cotton gins, spindles and sewing machines; of railroads, clippers and Atlantic cables; a nation which has reached out its countless roots broadly and deeply into the exhaustless soil of liberty, and whose forces, therefore, are as active and eternal as the will of the God who created them; the nation of a free Bible, free schools, free press, and a free ballot-box; such a nation, both as a matter of justice and necessity, would be apt to demand, and very apt to enforce the demand, that the processes of education should be as precisely and as fully suited to the special wants of the thronging industrial classes, as is the education of the English university suited to the wants of the English professional and aristocratic classes.

And the fact that such an education must of necessity require manual labor, so far from deterring, would rather stimulate Congress in making, and the people in enforcing, this new demand. When the line is drawn between those persons whose chief work is mental and those whose chief work is physical or with machinery, who so nearly constitute "the people" of America as the industrial classes? From the very extent of our territory and the exhaustlessness of its seen and unseen resources, these classes, for all time to come, must, as compared with all others, be the nation. In what quarter of the globe does the plowshare annually turn over so vast a breadth of virgin soil, and press onward even more rapidly than the sword to conquer the wilderness? What land is so netted and meshed with iron highways that groan under the weight of whirling products? What air is so filled with the hum and clang of mechanism? American products and fabrics, the results of manual labor, are carried in American vessels, the creation of manual labor, to the ports of Europe, Asia and Africa. And it is very easy to see what Congress meant by the demand for an education capable of actual use in daily business, and, therefore, one gotten by actual practice; and just as easy to see why it made such demand.

Educational Calendar. - A wide-awake, spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W. Martin, Topeka.

Tabits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects in imical to the Kansas Farmer.

Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

Agricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of Pike's Peak," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "THE WORLD A SCHOOL," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher. Topeka, Kansas.

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Kansas Text-Book, for teachers and students. ELEMENTS OF AGRICULTURAL GEOLOGY, for the Schools of Kansas, by Prof. Wm. K. Kedzie, M. S., of the Kansas State Agricultural

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact." In two parts: Part First - Elementary Geology

Part Second - Origin and Formation of Soils. Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a Centennial award for quality of work. Kansas, work, by Kansas mechanics, at this Kansas, establishment. Pronounced "faultless."—Felter's series of School Records, made to comply with Kansas laws by a Kansas author and Kansas publisher. The best School Officers' Records in the market —Felter's Flements of Rocksas publisher. The best School Officers' Records in the market.—Felter's Elements of Book-keeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.—The Annals of Kansas, a marvellous history of Kansas, written and printed in Kansas.—The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for Teachers and Patrons of Kansas schools, for twenty-five cents per annum.—The best Railroad, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment for Kansas equal to the best in America. GEO. W. MARTIN, Topeka, Kas.

The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixtyfour pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case, Kansas City, Mo.

This journal has received the warm approval of

most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

SATURDAY, JULY 27, 1878.

Applications for catalogues are flooding our office.

Last Wednesday and Wednesday night 6.10 inches of water fell.

Thomas Morgan will have charge of the College farm during Prof. Shelton's absence.

President Anderson came down from Junction City yesterday, but returned again in the even-

John F. Piper, of Labette, has a thoroughbred calf that weighed 1,200 pounds when but one year

F. P. Baker's letters to the Commonwealth, from Paris, are getting more and more interesting. We read them with delight.

The Blue river is rising again, caused by a fearful storm yesterday up near the head of the river. Bundles of wheat are passing down the stream.

Prof. Shelton and family started for their old home in Owasso, Mich., last Wednesday morning. We hope their vacation trip may be greatly enjoyed.

The Leavenworth Times publishes an extract from A. N. Godfrey's Commencement oration, entitled "The Kansas Farmer." It is good, hand it

We see by the Commonwealth that President Anderson is to deliver his Kansas lecture before the Shawnee County Normal Institute, in that city next Monday evening.

The sole right to exhibit Edison's phonograph in the State of Kansas has been secured by Mr. Sargent, who started with it on a lecturing tour a short time ago. So says the Western Review.

The work on the new building has not progressed very rapidly this week on account of the flood. To-day is the only day they have worked. The storm did not damage the building any.

Mr. Mitchell, brother-in-law of Lewis W. Call, of Silver Lake, made a visit to the College yesterday. He says that Mr. Call will resume his studies at this institution again this fall, with the intention of graduating.

Mr. C. F. Bowern, of Brown county, has been here this week to make arrangements for attending the College this winter. He reports a general enthusiasm for the Agricultural College among the young men of his section of the country.

The Kansas Graphic, an amateur journal published at Lawrence by F. L. Webster and F. Lodge, has reached our table. We are glad to see boys with such a practical turn of mind, and will X. A German proverb says: "Thorns sharpen early."

We are in receipt of Vol. 1 No. 1 of the Kansas Land Owner, by Rudolph & Larned, Topeka. It is a well printed real estate paper; and although published in the interest of the firm, it will through its noble tenor be a benefit to Kansas at

course you want to see that. It costs nothing either, gentlemen.

Mr. Walters has purchased four acres of land lying south of the Bluemont range and just east of Elder Goodwin's place. Overlooking the city as it does, it affords an admirable site for a residence. Mr. Walters will begin the erection of a stone house thereon immediately.

George Gale has returned from a very successful business trip through Clay county. He reports heavy crops everywhere and money matters brightening. Near Clay Center he sold trees to a farmer who threshed forty-three bushels of wheat to the acre, from a good-sized field. George will start for Dickinson county next week.

The heaviest rain that has fallen here for years risited this section of country this week. As reported by Arthur Blain, the total rainfall for the week is 8.42 inches, most of which fell in two days. Wednesday evening the water was over a foot deep near the bluff west of town, and one could swim a horse in going from the College to Manhattan. There was no strong wind, but a reg-Manhattan. There was no describe. No serious ular deluge, which we can't describe. No serious the departments, and this process is rigorously tion. Price, 75 used for sifting out incompetent and indolent art, Manhattan. damage has been reported.

Kansas never does anything by halves. If she makes up her mind to have corn, the farmer can just as well make up his mind to use a good-sized step-ladder in husking it; if she wants pumpkins, they roll forth like mill-stones; and if she has a hankering after fruit, she will stuff the orchards so that you have to crawl over the fence with the scoop-shovel and clear the way before you can open the gate. And so on all through. We have grapes like those of brother Caleph, the Columbus of that other land, where milk and honey flows; grasshoppers in cloudy myriads, like those of Egyptian notoriety; hogs until you can't rest. Did you ever read of Father Abraham's Durhams, Galloways, Jerseys, Cotswolds and Angoras? Well, Kansas can even beat that. In fact, Kansas has the superlative of all the superlatives in most anything, from a ten-penny nail to a threshing machine, from a jack-rabbit to a Mexican mule, from a sweet-potato to an Armenian squash, from a minister to a politician, from a tramp to a bloated bondholder. Had we space here to spread "we could a tale unfold —;" here comes Shakspeare with his porcupine, you know. But it lacks on space. One thing, however, is bound to boil over before we shut up. Kansas is the only State in the Union that can show a July rain of nearly nine inches, and yet claim to be "drouthy."

#### ENTERPRISE ITEMS.

Parties go out after grapes nearly every day,

J. B. Wadleigh started for New England yesterday, on a visit.

Will Fields came up from the Indian Territory for a few days' visit in Manhattan.

M. J. Hall, an old College student, made a flying visit to Manhattan on Friday and left the next

The musical voice of the apple-vender is now heard in our streets. The tenors seem to have the best trade.

Last Monday Charlie Irvin and George Hemsley set 45 shoes, sharpened 8 plows, besides some other work. We call that good.

Wendell S. Williston, after a prospecting trip out west for several months and a short stay at

home, returned east last Saturday. S. M. Fox had a difficulty with an unruly cow last week, and the result was that she pinned him up against the stable, breaking his collar bone.

Mrs. Huntington — Phany Hains,—an old student of the College, is visiting among her many friends. She now resides at Wallace, but still has a hankering after Manhattan.

The celebration of Emancipation Day by the colored people of this vicinity promises to be big with success. The reduced fare on the railroads will bring a large number from abroad. Extensive preparations are being made to accommodate all who may attend.

# NATIONALIST ITEMS.

E. B. Purcell and L. R. Elliott started east on

Several car loads of potatoes have been shipped from this place within the last week or two.

The Manhattan meat markets have consolidated The new concern retains the Allingham stand.

Mr. Joy, of McDowell creek, who was in town Tuesday, reached home about the time of the hard shower in the afternoon, picketed his horse, and had just reached the house when his horse was struck by lightning and killed.

The weather on Tuesday was awful - the morning sun shining hotly; later, close and sultry; afternoon, cool and airy; later, the thunder roared, the lightning flashed, and the rain came down in torrents. There was a rushing of mighty waters, and the rivers came up at the voice of the storm, at the rate of a foot an hour.

still rising. A. W. Rollins reports the Wild Cat higher than he has ever known it before. A bridge and ferry boat went down the Kansas this morning. There are two washouts on the railroad between Manhattan and Ogden, with a freight train between them. As we go to press, the rivers are reported at a stand-still.

# DIRECTIONS TO APPLICANTS.

# TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as posssble. Candidates for admission must be fourteen years

GRADES. Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all

pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in the College wholly depends upon his own action. The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

#### RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

### EXPENSES.

There are no charges whatever for enrollment attendance or instruction in the regular courses nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students and male students. the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Instimuch as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

#### LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor .- Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held parameunt in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. - When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

# AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he We acknowledge the receipt of catalogues from the following institutions: Kansas University, East Tennessee University and Agricultural College, Hampton Normal and Agricultural Institute, Louisiana University, and Maryland Agricultural College.

Have your smoked glasses ready for the afternoon of the 29th, and petition Neptunus to bridle the clouds. There will be some trouble in the sky. The sun will hide behind the moon, and of course you want to see that. It costs nothing can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform we are inclined to the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

# RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

# PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Department, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Education. Price, 75 cents a year. Address A. A. Stewart Manhattan.

#### CALENDAR.

Spring Term 1878 .- Began Thursday, Jan. 3d, and will close Wednesday, May 22d.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

### TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

# LITERARY SOCIETIES.

ALPHA BETA.— Chartered, December 26th, 1870.

Meets in College building every Friday at 2 P. M.
Ladies admitted. New students cordially invited to attend.

GEORGE L. PLATT, President. MISS ESTELLE BOUTON, Secretary.

WEBSTER.— Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. LEWIS A. SALTER, President.

TULLY SCOTT, Secretary.

# RAILROAD TIME-TABLE.

#### KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going East..... 12:20 P. M. Going West..... 4:10 P. M.

#### FREIGHT ARRIVES.

Going East...... 2:55 P. M., and 10:30 P. M. Going West...... 6:20 A. M., and 9:00 A. M. Passengers with tickets are carried on any of

the above-named trains. GEO. C. WILDER, Agent.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

B. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reck-oned as an "industrial."

echanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Dress-Making and Milliner, .- Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan.

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the highest breeding. Address E, M. Shelton, Manhattan,

Rarming for Profit.—Special courses in Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Ino. W. Webb, Cashier. A general banker; ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

ough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Board of Regents. S. M. WOOD, President, Elmdale.
W. L. CHALLISS, Vice-President, Atchison.
JNO. A. ANDERSON, Secretary, Manhattan.
B. L. KINGSBURY, Burlington.
J. R. HALLOWELL, Columbus. C. HENRY, Abilene. J. BEST, Beloit.

E. B. Purcell, Treas. L. R. Elliott, Land Agent. E. Gale, Loan Commissioner. Manhattan, Kansas.

FACULTY.
J. A. ANDERSON, President, Prof. Political Economy.
M. L. WARD, Prof. Mathematics and English. WM. K. KEDZIE, Prof. Chemistry and Physics. E. M. SHELTON, Prof. Prac. Agricul., Sup't Farm.
E. GALE, Prof. Botany and Horticulture.
J. E. PLATT, Prof. Elem'y English, Mathematics.
JNO. D. WALTERS, Teacher Industrial Drawing.
HON. D. J. BREWER, Lecturer on Practical Law.
A. TODD, Sup't Mechanical Department. A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughthe knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and user. chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathing in the classics and higher mathing in the classics and higher mathing in the classics are some converted in the classics and higher mathing in the classics are some converted in the classics and higher mathing in the classics are some constant. ematics are not taught. But it will be noticed in the following course that so soon as the pupil ac-quires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

# FARMER'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology. 6. Logic.	<ol> <li>Botany, Entomology.</li> <li>Inorganic Chemistry.</li> <li>Practical Geometry.</li> <li>Horticul, Landscape Gardening.</li> <li>Organic, Analytical Chemistry.</li> <li>Practical Surveying.</li> </ol>	<ol> <li>Physiology.</li> <li>Rhetoric.</li> <li>Algebra.</li> <li>Practical Agricul (elementary).</li> <li>Physics.</li> <li>Industrial Drawing.</li> </ol>	<ol> <li>Drill in English.</li> <li>Drill in Arithmetic.</li> <li>Industrial Drawing.</li> <li>Inglish Structure.</li> <li>Adv'd Arithmetic, Book-keeping.</li> <li>U.S. History, Industrial Drawing.</li> </ol>

# WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

# WOMAN'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Farm Economy, Special Hygiene. 2. Geology, Mineralogy. 3. Polit'l Economy, Practical Law. 4. Zoology. 5. Phys'c'l Geography, Meteorology. 6. Logic.	11. Botany, Entomology. 2. Inorganic Chemistry. 3. Industrial Drawing. 4. Horticul., Landscape Gardening. 5. Organic, Household Chemistry. 6. Household Economy.	1. Physiology. 2. Rhetoric. 3. Algebra. 4. English Literature. 5. Physics. 6. Industrial Drawing.	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arith., Book-keeping. 6. U.S. History, Industrial Drawing.

# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not

knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more tory practice.

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. The Farm.
The Nursery.
Carpentry.
Cabinet-making. Turning. Wagon-making. Painting. Blacksmithing.

FOR FEMALE STUDENTS. Dress-making. Printing.
Telegraphy.
Scroll-sawing. Carving. Engraving. Photography. Instrumental Music.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

### DEPARTMENTS OF INSTRUCTION.

# DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE.

Second Year: - General principles of breeding history and characteristics of breeds; adaptation history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage. corn and roots; soils that need drainage; how to lay out; a system of drains; house drainage; sewerage.

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; generative to the special production of crops; generative to the system of the second control of the system to be pursued; rotation of crops; generative to the system of the system o advantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY.

Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

# DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and sys tematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practical drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of prun-ing; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applica-tions of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

# CHEMICAL DEPARTMENT.

PHYSICS.

This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to their history, properties, manufacture, and especially with regard to their uses on the farm and interest. in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by labora-

#### CHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY.

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallography, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composi-tion of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of fruits, etc.

Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE.

Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called language, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete then that you gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the student

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication punctuation; construction and analysis of sentences; elements, uses and names; criticism of compositions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and penman-

ship.
Text-books: Webster's Academic Dictionary; Lee

& Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter
the printing class, the printing-office being the work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS.—The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the

topics included are:

Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech. Stems: Their derivation; their offices and prop

erties; their relation to other parts of words.

Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the principles governing their use along with stems.

Compounds: Their value; their properties and

uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of

the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain elerkships,

not because they do not know why given operations are performed, but because they can neither add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

Algebra is included in the course as a preparation for the study of Surveying.

DRAWING.

The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing during the terms indicated by object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Department ment.

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the prop-erties and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach or within his ability to construct. within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly surplemented with of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical principles and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy." GARDENING is included in Practical Horticul-

ture. See heading, "Landscape Gardening." HOUSEHOLD CHEMISTRY. See heading, "House-

hold Chemistry." HOUSEHOLD ECONOMY

Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and en laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlastingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry — and no more expensive.

Published every Saturday by the PRINTING DEPARTMENT OF THE

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Address A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and careplenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of these proposition to enter the professions of law, those proposing to enter the professions of law, ledicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. tions, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

lollows.	
Normal education: Teachers	1.13= 1.13
Professional education: Ministers	0 40
	0.55
Doctors	0.73= 1.71
T- J- at win   od 1100 T10 D'	
In agricultureIn manufacturing and mechanical	14.63
T and and downing	10.00
In trade and transportation	9.51 = 97.16

# AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Yansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its maintenance.

nance.

LOCATION.

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY. The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language: in the use of numbers as employed by ligent and expert in the use of the English lan-guage; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thor-ough instruction and laboratorial or field drill in the following sciences as essentially useful to an ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic Analytical Chemistry, Surveying, Geology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving and music.

# Printing Department.

Report of A. A. Stewart for 1877-8.

Gentlemen of the Board of Regents:

I take pleasure in submitting the following brief report of the work of the Printing Department for the nineteen months ending June 30th, 1878.

The average number of students in my department during this time has been about thirty-five. A thorough course of instruction in the principles of the art of printing, together with daily practice and drill, has been given to these persons. Particular attention has been paid to spelling, punctuation, capitalization, writing essays, etc. The classes have given good satisfaction, having in nearly all cases made commendable progress. In two or three instances students have displayed a peculiar adaptation to the work of a printer. In the coming year I hope to make the course still more effective in accomplishing the task assigned this department.

As you are aware, the Industrialist has been continued regularly during this year and a half. Last October it was thought best to enlarge the paper, and accordingly a column was added to each page and the pages lengthened proportionately. The enlargement involved additional expense, both in making the change and in producing the paper thereafter. The Industrialist has certainly done some very effective advertising for the College, as the attendance at the coming term will show. Over 70,000 copies have been printed during the last year, making an average of nearly 6,000 a month, or 1,500 a week. The paper was offered as a prize to those pupils of the common schools in the State who upon due. examination were found to excel in spelling, in figuring, in drawing, or in writing locals. A large number of teachers responded to the prize offer, and sent in the names of the suc- have chosen, they must be endured; but our list materially, it afforded an opening for some of the most judicious advertising the College ever did. The paper has steadily grown in favor ever since it was established. Everybody, both inside and outside of the craft, has spoken commendably of it. No class of people are more competent to judge of its merits than editors, and from time to time they have very freely expressed their appreciation of it.

I submit with this report an account of the receipts and expenditures of the department for the year and a half past. The total expenses for the past year have been \$825.72; the total receipts were \$458.95, which deducted from the total expenditures show them to have been \$366.77 greater than the receipts. At the President's request I have furnished you with an estimate of the cost of publishing the paper during the next three months.

During the year the department has gotten out 1,500 copies of a 32-page catalogue, and printed a law brief, besides the customary job work for other departments.

This department needs some additional | nal.

material, but can get along hereafter as heretofore, if the funds of the College do not justify an expenditure in this direction.

# Better Training.

As the world grows old, the results of experience accumulate, but men learn slowly therefrom, else how comes it that thousands expect to live without labor and hope to acquire property without exertion or investment? The country is filled with such men. They have no peculiar gifts, no special qualifications of any kind, yet refuse to perform work for which they are fitted and aspire to places which they cannot fill. With here a job and there a job, performed indifferently well, they manage to eke out an existence. Nothing is contributed by them to the capital of the country. No enduring improvement is due to their thought or industry. They live and move, but the industrious part of the world foots the bills. They are not positively bad citizens, for as a class they are rarely guilty of crimes; neither are they good ones, for they make no effort to gain what the average man can an independent living. In one respect they conform to the teachings of the Scriptures,—they take no thought for the mor-row,—but in every other they violate them and every sound doctrine of political econ-

omy.

Next arises the question, Why is there such a class, so large and so rapidly increasing, when there are thousands of acres of fertile land yet unoccupied in the West, a quarter-section of which any of these loiters might own if he would but work and save his wages for one year? The answer is they have never been trained at all to habits of industry, or else the training which they have unfortunately had has taught them that to work on the farm, in the shop, or ship-yard, is a menial occupation which they should shun as a disgrace. Thousands annually are thus taught and go forth to live without robust physical exertion; thou-sands now wholly untaught see some one making his way without apparent labor, and hating toil hasten to imitate him, and succeed just so far as to copy his laziness and

there the parallel ends. Inasmuch as these men cannot be restrained and will go on in the path they cessful competitors. While this increased with them their kind should die out. To insure an end so desirable the method o training must be changed. For the trashy course yet pursued in three-fourths of the people's schools must be substituted an industrial course that shall bring the mind face to face with the wants and necessities of life, and prepare it to meet and provide for them with courage and independence. When parents and guardians fail to send their children to school, the law of the State must compel them to do this their high duty. Impracticable studies must be cast out, ornamentation disregarded; and every superfluity that does not fit the boy for the future active, industrious man, rejected. In this way alone can the country hope to see a class of non-producers weeded out and their places filled with men who will add somewhat to its capital, or at least render themselves independent of the charity of their neighbors.—Clifton Localist.

It is estimated that 37,000 young women have been graduated from female colleges and seminaries this season. Just think of it! Thirty-seven thousand young women with their young minds full of French conversations, mental philosophy, white pekays, and deferential calculus, and not one of them that can make a green apple pie or map out a constitutional amendment for the suburbs of a pair of pants.-St. Louis Jour-

### Industrial Education.

The following commencement oration was delivered by W. E. Bridge, of the Illinois Industrial University, at the late commencement exercises:

As the world advances, the demand for educated men becomes more imperative. Education makes the world better in every respect. It tends to better civilization, better government, better industries, better religion. It is so important to the welfare of a nation that every intelligent man feels the need of it both for himself and for his

But while it is certainly true that we need more education, the question arises, What kind of education do we need most? I answer, industrial education. The majority of educated men have purely a literary training, and this field is crowded to its utmost capacity. The professions are full to overflowing. What our country needs is more intelligent men to develop those industries which are the very fountain-head of our existence. What we want is men who shall understand the needs of the industrial classes, and who will be enabled to elevate them to a higher plane in the scale

Education means more than the possession of knowledge; more than a mere store of learning. It is the power to absorb knowledge from our fellow-men, to draw lessons from the experience of others, and to use those lessons as guide-posts to our own success. An educated man is one who not only has knowledge, but can also use it.

Industrial education is not to teach men how to perform manual labor, but to teach them the great underlying principles of nature's forces, and thus, through the mental, to diminish the physical labor now neces-

sary in the industrial arts. The progress of industrial education has been slow. The work has not comprehended the benefit to be derived from it. The pecuniary rewards and social advantages of the industries have been far below those of the professions. There has existed among the rich and educated a strong prejudice against the industrial classes. Instead of endeavoring to educate and elevate the artisan in his own department, aristocracy has done all in its power to prevent his improvement. It has even made it appear a disgrace to labor; and so strong is this feeling, even to-day, that laboring men who have procured the means with which to send their sons to college, advise them to secure a literary rather than an industrial educa-

Now, I would ask such men who they expect to develop and elevate those industries in which their lives have been spent, if not their sons? Of what avail is it to build agricultural colleges, if farmers send their sons to school to study law instead of science?

The foundation stones of republicanism are equality, progress and the dignity of labor. Labor is degrading only when associated with ignorance and vice. Educate labor and you will have equality, while progress will be inevitable.

But while the progress of industrial education has been slow, it is surely gaining ground step by step. Through the advance of civilization and the triumph of reason over prejudice and ignorance, the time is not far distant when the industrial colleges of the land will stand among the first educating influences of the world. Already the dawn of a new era is breaking. Soon the surrounding darkness, which now is but faintly illumined by the rays of the coming sun, will have been swept away by the lustre of mid-day light.—Prairie Farmer.

THE INDUSTRIALIST, 75 cents a year.

SATURDAY, AUGUST 3, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

THE press of Kansas will confer a favor upon us by publishing the following announcement:

The Fall Term of the Agricultural College will open Wednesday, September 4th, and close Wednesday, December 20th, 1878. Tuition absolutely free.

No citizen caring anything for our public schools, the stronghold and pride of our Republic, can afford to stay away from the annual school meeting of his district, held by law on the second Thursday in August o each year. The second Thursday comes on the 8th this year. Remember the day and attend the meeting.

### The Four Natural Languages.

There are four natural languages, or modes of communicating ideas. The first is that of gesture. By it some ideas can better be expressed than by words. The babe uses it, without previous instruction. The maiden's cheek flushes under an admiring gaze, without previous training. A better teacher than man has given every person all the skill ever employed in the industrial vocations. The only classes who are supposed to require instruction in this language are preachers, lawyers, politicians and actors, all of the professional group.

The second language is that of spoken or written words, and all need skill in it, because all need to express their own ideas and to understand the ideas of others. But the several classes do not need vocabularies of equal fullness. Does the carpenter use the same terms as the lawyer? He has a vocabulary of his own, quite as perfect for his use as that of the lawyer for legal use. No professional man can understand a conversation between two locomotive engineers on the merits of their engines. And as to doctors, notwithstanding their oracular gravity, nobody pretends to believe that they even understand each other. So that there is a professional and an industrial language. And on both sides there are extremes of dialect. Now, is the every-day language used by the industrial classes Latin, Greek or Hebrew? Not to any alarming extent! What is the sense, then, in forcing these professional dialects on them in the schools? Will printers give classical names to spaces, shooting-sticks or profane box? Will carpenters recast their technology? More industrialists use under than over two thousand words, and yet with these they express exact ideas clearly. Where is the necessity, then, for pile-driving the ninety-seven with the classical technology of the three? And if there be any, is the free school to furnish the steam for your pile-driving? Where are correctness in spelling and skill in the art of using every-day English to be acquired by the 134,000 out of the 135,000?

The third natural language is that of reckoning. You cannot strike a trial balance kept in words; you need figures. What use do the industrial classes make of these -the 73,000 farmers for example? Do they go beyond book-keeping? Do they employ equations? Why not? Because they have no use for them. Did anybody, outside of school, ever care a straw whether that first courier overtook the second courier - especially as he might have broken in an earnest endeavor to send forth the his neck after he started, as he ought to graduates as nearly uniform in length, have done? Professional gentlemen are, in breadth and thickness as uncontrollable cirthe main, the only ones who use the pure cumstances permit. The fact that one stu-

mathematics, and yet from bottom to top our books are built on the pure line; if you doubt it, compare the hand-book of a carpenter, mason or accountant with your higher arithmetics, algebras and geometries.

The fourth natural language is that of lines. By it ideas are expressed which cannot be communicated by either of the others. Professional men rarely use it; therefore it is so little taught in our schools. But to the carpenter, blacksmith, shoemaker, tailor, dressmaker, mason, sign painter and engraver, it is invaluable; while to the farmer it is practically worth more than algebraic arithmetic. The industrial classes use drawing five times as much as the professional classes use abstract mathematics. Why not reverse the proportions, then, and substitute accuracy in reckoning, bookkeeping and industrial drawing, free-hand as well as geometrical, for the present mathematics?

These, then, are the languages which men use, and it is easy to see the proportions of their use by, and therefore their worth to, the industrialist. They ought to be taught as arts, not sciences, because these classes practice the art. For there is precisely the difference between an art and a science that there is between a just-graduated medical student and a skillful physi-

#### Stupidity Sometimes a Compensating Mercy.

If there be any one thing for which humanity should be especially thankful, it is the wonderful vitality and reproductive energy of nature; and if there be any one monitor which parents and teachers should more heed than another, it is what they term the "stupidity" of the pupil. Viewed from an educational standpoint, stupidity has been, and will be, the preserver of the human intellect! It acts as do the bumpers of mental cars, which keep them from splintering demolition; or, as the elasticity of fluids, which prevents the granite cliffs of the understanding from being ground into ooze by the lashing waves of owlism. Stupidity may be adduced as an evidence of fore-knowledge and compensating mercy, equally with the wing of the bird or the fin of the fish. It is to the mind what instinct is to the horse, which, though he be lead to water, delivers him from the sagacious and philanthropic destructiveness of the superior being man.

For generations the young have been placed in educational hot-beds, where, regardless of individuality and requirement all germs have been treated alike, and all seedlings sought to be forced by the same processes to the same size. No one questions the value of hot-beds, or the necessity for gardeners; but, are all hot-beds properly managed, or have either all gardeners or teachers attained perfection? When the florist finds that a desirable plant is not thriving, he tries to discover and meet the wants of its nature. Relying upon the skill of its Creator, he regards "stupidity' as indicating an error in his own work. So also, does the true teacher; and there are many such, justly meriting and receiving praise from which we would be the last to

But how much can the best teacher really effect under the prevailing system of female education? It provides a standard bed stead, properly iron; and, heedless of the proportions of mental organism, pulls out, ligatures, or cuts off the several members,

dent has a strong taste for plants, or animals, or chemistry, and a feeble power for abstruse computation, is deemed the best evidence that nothing short of a perfect mastery of all terrestrial and celestial mathematics can remedy the defect in his nature and he is treated accordingly, to the necessary neglect of the dominant faculty of his organism. Another is found to have a vigorous imagination, or love for argumentation, fine arts, or mechanism: are these developed as nature develops the physical organs? By no means; for order is the primal law of this educational hospital. It classifies these patients upon the basis of the amount of medicine they have already taken, as directed in the regular course. To all of the same class it gives the same diet and exercise, and does its very utmost to perform the same operations upon all. So perfect are its methods that the attending physicians can tell to a dot just what they will prescribe in any day of any month. Besides, for years and years the greatest ingenuity has been exercised in devising exquisite instruments of torture, in the shape of text-books, which are warranted to pinch a nerve a little harder, or stretch a leg an inch further than any previously

For example, take the grammars which treat of the philosophy of language as a science, instead of the art of using language. The fact that each rule and exception in them can be perfectly recited by those who blunder hourly in their use of words, or for the want of words, clearly shows that they do not necessarily, or perhaps usually, give skill in the use of words as tools. Either botany, physics or chemistry, if naturally taught, can be more readily mastered by the young student; and it is a debatable question whether Blackstone is more difficult to understand. At any rate the assertion may safely be risked that there is not a Justice on any Supreme Bench in the United States who could to-day, and without special preparation, pass a creditable examination in the latest technicalities of grammar; and yet, are not these gentlemen adepts in the art of conveying exact ideas by the employment of precise words? Were the United States Senate to apply to the Kansas State Board of Education for commissions as common school teachers, it is possible that not a single Senator would receive a firstgrade certificate, and that many would receive none at all; yet do not these gentlemen know something about real life, its necessities, and the knowledge it most demands?

We admit the difference between the work of the teacher and that of the judge, and heartily desire that insiructors shall be thoroughly qualified for their work. The only point we urge is, that the knowledge of language which the judge uses is vastly different from the knowledge of language which the grammars set forth; and that of the two, the former is most practical and therefore the most preferable. It would not be so objectionable if the art were taught first, and the philosophy of the science, as explanatory of the art, were taught afterwards, when the mind of the pupil is more matured; but, judging by the results, the majority of American students rarely attain skill in the art, either during college life or at the average common school. The system imperatively requires the attending physician to use daily just such instruments as grammar, which combine a greater variety and power of torture than adults realize; and it is not surprising if the patients suffer accordingly. Now, what force less than that of the vitality of nature itself could preserve the human intellect under such treatment?

Educational Calendar. - A spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W. Martin, Topeka.

abits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects in imical to the Kansas Farmer.

Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching disinfectants ventilation etc. Special bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

A gricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

A Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of the title of "Prentis in Europe;" PIKE'S PEAK," the interesting address originally delivered under the auspices of the Kansas State delivered under the auspices of the Kansas State Historical Society, and never before printed; and "THE WORLD A SCHOOL," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address GEORGE W. MARTIN, Publisher

Printing!—Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the Industrialist by the Department furnishes advanced students the requisite drill in newspaper work.

Kansas Text-Book, for teachers and students. ELEMENTS OF AGRICULTURAL GE-OLOGY, for the Schools of Kansas, by Prof. Wm. K. dzie, M. S., of the Kansas State Agricultural

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact." In two parts: Part First - Elementary Geology

Part Second - Origin and Formation of Soils. Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a Centennial award for quality of work. Kansas work, by Kansas mechanics, at this Kansas establishment. Pronounced "faultless."——Felter's series of School Records, made to comply with Kansas laws by a Kansas author and Kansas publisher. The best School Officers' Records in the market.—Felter's Elements of Bookkeeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.—The Annals of Kansas, marvellous history of Kansas, written and inted in Kansas.— The Educational Calendar, a printed in Kansas.— The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for twenty-five cents per annum.—The best Railroad, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment for Kansas equal to the best in America. GEO. W. MARTIN, Topeka, Kas.

The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixtyfour pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case, Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible. manner possible.

SATURDAY, AUGUST 3, 1878.

Charlie McConnell is working on a daily paper in Salina.

We are glad to see the normal institutes take so kindly to the metric system.

Will Sikes came down from Vienna last Monday and spent a day with his friends here.

Prof. Kedzie came in on the train Friday, and is now packing his goods for shipment to Oberlin. He will leave next Wednesday.

The Minneapolis Normal Institute Record will please accept our thanks for publishing our "Directions to Applicants" in its issue of July 31st.

Professor Bardwell, of the State University, has issued a text-book on arithmetic. We have not seen the book, but see it highly spoken of.

The Riley County Normal Institute opens next Monday. It will meet in the new city school building. Teachers are already coming in, and a large attendance is expected.

We acknowledge the receipt of a complimentary ticket to the Ninth Annual Fair of the Riley County Agricultural Society, to be held at Manhattan, Sept. 3d, 4th, 5th and 6th, 1878.

Two fine Shorthorn calves have been added to the College herd this week. Their sire was the famous young bull, 2d Duke of Jubilee, now deceased. They are a valuable addition.

One of the most interesting papers among our exchanges is Zur Heimath, a German periodical published at Halsted, Harvey county, in the interest of the Kansas tranch of the Russian Mennonite church. We read it with delight.

Bernhard Anderson sends us word that he will not return to College next term. He is clerking in a drug store at Salina. Although we are sorry Mr. Anderson cannot return, we are glad that he is

the trees, a chimney blown off the mechanical building, and the lids removed from the scuttles on the various College buildings. This morning it is as hot and sultry as ever.

The mason work on the east wing of the new building is finished, excepting a small gable. The workmen have lost only one day this week. If nothing unusual happens, Mr. Winne will be able to complete his work in the time allotted by the contract. The late heavy rains have prevented rapid progress, but with favorable weather hereafter, the force now employed will finish the job in a few weeks.

We hereby summon students C. O. Smith and John Mann to appear at the office of the INDUS-TRIALIST for the purpose of viewing a mechanical contrivance of rare labor-saving qualities. Mr. Walters has made an attachment to our press whereby the party of the third part is enabled to keep the concern revolving while the parties of the first and second part are taking a rest. Surely it is one of the greatest inventions of the age, and a triumph of the mechanical genius of the nineteenth century.

A. A. Stewart was greatly pained this week to hear of the sudden death of his brother Dwight, on Sunday last, near Neosho, Mo. The Wednesday before his death he went out to take charge of a stage stand between Joplin and Neosho, feeling a little unwell. On Friday, hearing that Dwight was worse, his father and sister went out after him, but he was too sick to be moved. Sabbath morning the boy's spirit passed away, and he was brought home a corpse. Dwight was a very promising lad, over fifteen years of age, and it will be a long time before the parents and children at home can set aside the vacant chair, and a still longer time before the absent children will forget him as they saw him last.

"An ounce of prevention is worth a pound of cure," even in Herr Fræble's kingdom. No longer can tardy young Manhattan pull down his eyebrows and, with a Fichte logic, produce the timehonored excuse: "Our clock's behin', an' mother didn' call me." The chances for early adjournments of class sessions are also smashed up and gone forever. So are all the sweet hopes in the Minnocent hearts of tutor and toots for prolonged recesses and the like. And when night pulls down the black cap over the face of the beautiful city on the delta of the Blue, sweet peace will prevail on the deserted streets and sound slumber reign in the garrets where the boys are roosting. Yes'm. Because last Monday architect Carr provided the new public school building with a fine four-dialed

On Monday last President Anderson lectured before the Shawnee County Institute, and on Wednesday before that of Dickinson county. Although we have instructions to the contrary, we cannot refrain from quoting a few sparks from Prentis, upon the address:

A good solid crowd of Topeka's best and solidest folks, reinforced by the teachers now in session here, assembled at the Congregational church last night, to hear President John A. Anderson's lecture on "Kansas."

We have heard lectures and lectures, but never another just like the one under discussion; so much fun and so many figures; such satire and statistics; such appeals to the heart and to the

statistics; such appeals to the heart and to the census returns; such figures of speech accompanied by figures from the agricultural reports. It was like a patent office report in poetry; a real estate paper edited by Shakspeare.

It was all about Kansas; Kansas as she was, and is, and as she is going to be. It was full of extravagant, wild and unreasonable statements about Kansas, all backed up by figures which it was impossible to overthrow. As the audience was about to rise in a body and denounce the lecturer as a second Ananias, they were reduced to order by the production of statistical information which showed that what is impossible everywhere else. showed that what is impossible everywhere else, was the regular thing in Kansas.

Seriously, it was a magnificent lecture, full of information which is necessary for all men, min-gled with that humor which is the breath of the Kansas man's nostrils and without which a lecture is to him a waste and a burden. It was full of nobleness and goodness; of patrotism and purity. It ought to be first heard in every Kansas town, and then printed and read by every Kansas man,

#### NATIONALIST ITEMS.

Willard Elliot is taking the school district census. Maj. Adams has been sick this week, but was out yesterday.

A. W. Rollins sold some two-year-old grades for This shows the advantage of using a thoroughbred bull.

The Pottawatomie County Normal Institute meets in Louisville, Monday, Aug. 5th, and will continue four weeks.

The people of Blue Rapids have appointed a committee consisting of C. E. Tibbets, John Mc-Pherson, and C. W. Farlington, to aid in securing a railroad up the Blue.

#### ENTERPRISE ITEMS.

E. B. Purcell has been quite ill for a few days. in a position where he can pursue his favorite study—chemistry.

Another wind and rainstorm visited Manhattan last night. A great deal of fruit was shaken off force of hands will be put to work immediately to reprint all damages. repair all damages.

The eclipse was observed by our citizens generally. The near-sighted ones came off with spots on their noses, but the eclipse went on all the same. A very perceptible diminution of light and heat were apparent at the climax, and the shadows of objects were very clearly defined. There was not a cloud in the sky, and from the beginning to the end the phenomenon could be clearly watched. The two hours were spent in interested study of the progress of the great eclipse

In the case of the Kansas Pacific Railroad Lands, the decision (if sustained) will open up for settlement a large number of tracts. But there is also a great body of land in Riley county known, commonly, as railroad land which belongs to private parties. It will certainly be best to make the filing before any permanent improvement is the filing before any permanent improvement is commenced. This is the safe way, at least. Besides this, each of the pre-emptors will have to make a contest with the railroad company before his right can be established to the tract he files

There was a drove of 3,800 sheep passed Neufchatel last week, going west to Marshall county, near Marysville. They were bought in Missouri at \$1.00 to \$1.50 per head.—Onaga Journal.

Building rock is now \$7 per cord in Abilene. The demand was never so great as at present. New buildings are being erected in all parts of the ity and s progress .- Abilene Gazette.

T. C. Henry, of Abilene, was in Junction City last Tuesday to meet President Anderson, of the Agricultural College, on official business. They are both members of the executive committee of the Board of Regents of that institution, Judge Kingsbury, of Burlington, constituting the other member. The object of this meeting was to select a gentleman to fill a vacancy in the list of College professors, caused by the resignation of Prof. Gale, Professor of Practical Horticulture and Botany. They selected Prof. J. H. VanDeman, of Iola, for the place. From the reputation he bears, he is evidently the "right man in the right place."—

Lunction Union Junction Union.

# DIRECTIONS TO APPLICANTS.

TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he

will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as posssble.

GRADES Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in the College wholly depends upon his own action. The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much

make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed number of recitations; and no one will be permitted to have less than one industrial and three literary recitations. recitations.

RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

EXPENSES.

There are no charges whatever for enrollment, attendance or instruction in the regular courses nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instru-ments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.-Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. - When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my penses by work?" Some students make one half their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire suffi-cient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

RULES.

1. Behave as a true man or woman should, at all times and in all places.

\*2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Depart-ment, contains original and seasonable articles on The work of grading is strict and uniform in all the Farm, Orchard, Trades, Sciences, and Educathe departments, and this process is rigorously tion. Price, 75 cents a year. Address A, A. Stewused for sifting out incompetent and indolent art, Manhattan. CALENDAR.

Spring Term 1878.—Began Thursday, Jan. 3d, and will close Wednesday, May 22d.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

TO NEW STUDENTS

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

#### LITERARY SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in College building every Friday at 2 P. M. Ladies admitted. New students cordially invited to attend.

George L. Platt, President. MISS ESTELLE BOUTON, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome.

LEWIS A. SALTER, President.

TULLY SCOTT, Secretary.

#### RAILROAD TIME-TABLE.

### KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going East...... 12: 20 P. M.

Going West...... 4:10 P. M. FREIGHT ARRIVES. 

Passengers with tickets are carried on any of the above-named trains.

GEO. C. WILDER, Agent.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

H. S. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre streets.

Yocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reckoned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

**Dress-Making and Millinery.**—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Fur-nishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. The Farm Department of the Agricult-

ural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the high-est breeding. Address E, M. Shelton, Manhattan,

Farming for Profit.—Special courses in Kansas Practical Agriculture. Simple Til-Talsas Fractical Agriculture. Simple Inlage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

hemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

reglish Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Manhattan Bank.—E. B. Purcell, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

Athematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the former, mechanic or business man benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Board of Regents.

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Manhattan, Kansas,

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A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farmthe degree in which he makes it his own. Hence ble education to those who will engage in farming; and, therefore, the Farmer's Course must from the nature of the case, be its main one.

FARMER'S EDUCATION. Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a warm is recognized to be a local content of the chief end of the ch ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

FARMER'S	COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1994100	199400	न्यं ध्वाद	504000
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# WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

# WOMAN'S COURSE.

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#### W. 16. MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS.

Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them; as selected by the pupil or parent: one of them; as selected by the pupil or parent:

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

FOR FEMALE STUDENTS. Dress-making. Dress-making.
Printing.
Telegraphy.
Scroll-sawing.
Carving.
Engraving.
Photography.
Instrumental Music.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

# DEPARTMENTS OF INSTRUCTION.

### DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE. Second Year: - General principles of breeding history and characteristics of breeds; adaptation of different breeds for special purposes and localities: implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage. tion of corn and roots; soils that need drainage how to lay out; a system of drains; house drain-

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; genera-advantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; ma-nures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY. Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of buttermaking; packing and preserving butter.

# DEPARTMENT OF BOTANY AN PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and systematic, with a constant attention to the practical tematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practical drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and arrangemental grounds. ornamental grounds.

The lectures in Practical Horticulture embrace the lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of prunings the carband; fruit suitable for orchard and ing; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are ac-companied by a practical drill in in the work of laying out and plotting grounds topographically.

# CHEMICAL DEPARTMENT.

PHYSICS. This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights mecnanics, of inquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their com-pounds, are next considered in succession as to their history, properties, manufacture, and especially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by labora-

CHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues of the course of the c the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

#### AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purpose of production; the composition and use of many contractions and use of many contractions. of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY.

Embracing the composition of the atmosphere; atmospheric pressure; temperature and humidity; laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology. MINERALOGY.

This includes the study of the laws of crystallog-raphy, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composi-tion of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of fruits, etc.

SPECIAL COURSES

Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE

ENGLISH LANGUAGE.

Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called language, just as an engineer handles a locomotive. intelligent in handling the machinery called lan-guage, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usu-ally found in literary colleges, the constant atten-tion given this subject by all the departments, and especially the practice required in the print-ing classes, affords superior advantages to the stu-dent.

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; ters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of compositions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and penman-

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter the printing class, the printing-office being the work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS.—The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the

which will all the theeters does included are:
Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech.
Stems: Their derivation; their offices and properties: their relation to other parts of words. erties: their relation to other parts of

Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems. Compounds: Their value; their properties and uses; the laws governing their formation.

'Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the

and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and changes, in his use of language. In the same and observe in his use of language. In the same manner he is conducted through a study of the

not because they do not know why given operations are performed, but because they can neither add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calcuand sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a rile of wood theorem. is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

In ARITHMETIC AND BOOK-KEEPING

Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important art.

Algebra is included in the course as a preparation for the study of Surveying.

DRAWING.

The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptors. tive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they classes make a far greater use of lines than they do of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops and 44 fabrics in the Sawing Depart ing, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Depart-

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student willful in the application of lines to the field by skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with such special guidance as is found mecessary for a such special guidance as is found mecessary for a full comprehension of the mathematical prin-ciples and their applications; and extended field practice is required in the use of the compass, level trapsit and the oldita level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

GARDENING is included in Practical Horticulture. See heading, "Landscape Gardening."

HOUSEHOLD CHEMISTRY. See heading, "Household Chemistry." farm which usually come under the supervision of

hold Chemistry."

HOUSEHOLD ECONOMY
Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

No. 17.

# THE INDUSTRIALIST.

Published every Saturday by the PRINTING DEPARTMENT OF THE

### KANSAS STATE AGRICULTURAL COLLEGE.

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Address A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

Normal education:	
Teachers	1.13 = 1.1
Professional education:	
Ministers	0.43
Lawvers	0.55
Doctors	0.73 = 1.7
Industrial education:	
In agriculture	59.13
In manufacturing and mechanical	14.63
In personal service	13.89
In trade and transportation	9.51 = 97.1
	100.0

AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in expectation by the State was its of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education. ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. nual income from this endowment is about \$20, 000, out of which all expenses of instruction are ood, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its maintenance. LOCATION.

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricult-ural State in America. The Kansas Pacific Rail-way, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY. The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English landers are the course of the Engli the farmer, book-keeper and engineer; and in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to conough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dress-making, printing, telegraphy, carving, engraving and music.

### Is Kansas a Wilderness?

This Kansas is a wilderness is it? So some of the Eastern papers say, because on the borders certain of their ruffians are now and then hung or shot. Such, however, is not the case in the settled portions of the State. Law and order are maintained quite as strictly as in the old States; and where there are fifty acts of rowdyism and crime in them, there are not ten in Kansas. Every town of one or two years' growth has its church, many of them from two to six, and each year witnesses new structures of the kind. Schools are quite up to the standard of Massachusetts and of the leading Middle States. Our people started with their revised methods, and in many cases have improved the model, so much so that unprejudiced teachers from the East pronounce our schools equal to the best. The colleges and high schools of Kansas more emphatically deserve the name than one-half of those planted in other States of the Union for this reason: they turn out men and women thoroughly fitted to begin social, practical life, who, if they are less advanced in classic lore, are so trained and have such a superabundance of energy and courage, that in the run of life they will greatly distance those overwhelmed with Latin and Greek. Of course the trend of instruction is to-

ward science, because scientific training is, to use a common phrase, in demand. In fact, in the leading schools scientific studies occupy the foreground, and in connection with the English language constitute the greater part of the course pursued. Our grandfathers were sturdy, patient men; they waded through tomes of classical literature, exhausted large volumes of impractical mathematics, and blunted their reason by reading stores of useless treatises on metaphysics; they wrangled about politics and quarreled over theology; they built up schools with an iron hand, and thus laid the foundation for the training of their descendants. But they knew little of their home, the earth. Its wonderful treasures, hidden in the great deep and in the hills and mountains, were sealed to their view. Nay, the vegetable kingdom was to them an unknown domain. Chemistry - well they had just enough to bother but not enlighten a mind. There was in all branches of science in this day some fact, much guessing, and a great deal of false deduction. Each new-comer had a theory which he strenuously maintained by conjectural facts and shrewd guesses. As such a course was unwise and unproductive of anything savoring of knowledge, men gradually shook off the trammels of the schools, and while profoundly grateful to those whose munificence had established them, began the work of reform, a task that has cost a century of hard work.

While this was going on, Kansas was a wilderness, the haunt of the bison and the home of the nomad. When it was about to be accomplished, Kansas came into the Union, and after some struggle succeeded in starting as a State. First and foremost its people established churches and schools. The latter had not to pass through the experiments, changes and reforms to which the schools of older States were subjected. They started with the advantage of all then known improvements in curriculum and method. From that time to this, the march has been steady, the improvements many. To-day a better course for practical life is offered the student by Kansas State schools, than could have been secured in the best of New England colleges forty years ago, and wranglers, but they are sober, thinking men, who have learned how to direct the

the contest of actual life. In the necessary the useful, their students are grounded. Every step is repeated until each is, or may be, master of all passed over, and then pushed forward up to higher plains. The student learns little by rote. From the start he begins the life of an experimenter, people and their children. Let me simply and is taught how to record his facts. He then begins the process of generalization, and soon acquires the method of induction - the supreme attainment of his student

In Kansas schools, no one pretends to "complete his education;" his education is properly begun, and if ever completed it will be by his own individual effort. This is duly impressed on his mind; hence, he learns to acquire rather than to load his memory with the the thoughts of other men; and hence he goes forth into the world to interrogate both nature and man, and knows how to register his knowledge so as, at a future day, to save much after-toil. When he leaves the college or high school, if he has passed creditably through the prescribed course, he goes forth a young philosopher, bright, eager, thoughtful, and ready to push his way in the conflict of men. Such students will survive, while those trained under the old regime, with little but their memory and a few text-books to resort to in an emergency, will fail and fall by the high-

This much Kansas schools pretend to accomplish, and in the main succeed in doing The young men and women who go forth are furnished with ample guides for the conduct of life, and fitted to guide and guard the youth committed to their care.-Clifton Localist.

# The Public Schools.

As one who has spent thirty-five yearshalf his life-time - in teaching the young idea how to shoot, allow me to thank you for the stand you have taken in favor of reform in the curriculum of our public schools. The tendency has been for years to turn our common schools into colleges, with a course of study long enough to last from ten to fifteen years, and then to bring out a class of graduates quite unfitted for the practical duties of life. A large portion of the youth who take the whole course in languages and the higher mathematics, as pursued in the grammar and high schools, neglect or forget the essential elements of a good English education; and when they start out in the world are only fitted to play the role of gentleman or lady, and with a strong distaste for the every-day work of a plain life of honest toil. They can look to nothing below the learned professions, and these are all overcrowded. The result is that we have too many pegs for the holes, and multitudes turn to genteel paupers rather than resort to some kind of manual industry.

The trouble is that we have not a single text-book or a single exercise in our whole common school course designed to make better farmers, better mechanics, or better housewives. We have in the city a Polytechnic Building, where it was designed to School Board, it has become all Polly, with the technics left out.

As for teaching ancient or modern languages in the schools, it is only a costly humbug, entailing heavy expense upon the people and resulting in no practical good. Of the thousands who have studied German

ner born," and speak the language as their

native tongue.

But I did not set out to write an essay on common school studies, but simply to comsystem that is full of wrongs, both to the people and their children. Let me simply add that if you can bring about a reform that shall secure the teaching of hand-work as well as head-work, that shall give the youth more dexterity and power in grappling with the hard duties of a laborious life, you will have achieved a work worthy of all honor.—"An Old Teacher," in the St. Louis Globe-Democrat.

#### Daniel Webster as a Farmer.

Daniel Webster was a farmer, and took delight in country things. He had a patriarch's love of sheep. Choice breeds thereof he had. He took delight in cows. He tilled paternal acres with his own oxen. He loved to give the kine fodder. It was pleasant to hear him talk of oxen; and but three days before he left the earth, too ill to visit them, his oxen, lowing, came to see their sick lord; and as he stood in his door, his great cattle were driven up that he might smell their healthy breath, and look his last on those broad, generous faces that were never false to him.

What an affecting scene is here described? Daniel Webster loved these animals for their own sakes, and not for their value in silver or gold. He loved to feed them with his own hands, in order to witness their happiness while satisfying their hunger, and to win their love for him. They loved their kind owner, and no wonder they came lowing, one by one, to see their sick lord! The Scripture says: "The ox knoweth its owner." Then all the splendid animals, numbering between one and two hundred, knew Daniel Webster as they were driven up and looked on him for the last time; and who shall say they did not miss him and mourn for him when he could see them no more?

No doubt this great man enjoyed more real happiness in the society of these dumb brutes of every kind on the Marshfield farm, than he ever realized in hearing the plaudits of his fellow-men, as his eloquent words rang out in the Senate chamber of our great nation, and thousands of worshipers were following in his train. He knew that fame was but a breath, and learned by bitter experience that the most devoted of his worshipers might desert and betray him, but that not one of these guiltless creatures would ever prove false to him.—Miscellane-

THE agricultural machinery trials at the Paris Exposition are to take place the present month. It is thought that America will take the prizes, but England, France and Belgium are regarded as dangerous rivals in some of the tests.

THE demand of the Nationals for agricultural and mechanical schools, is one that will have to be met sooner or later by the dominant party. Our public schools have been too closely confined to the branches teach practical science and the common arts | that are most necessary to the professional of life, but passing into the hands of the man. We must educate youth for the farm and the work-shop just as we do for the store, the bar, and the pulpit. It is idle for us to wonder at the boys deserting country homes to seek occupations in the city as long as their schooling leads in that direction only. Some of the States, including our own, have agricultural colleges, but that in the schools, not one in a hundred could is not enough; there should be agricultural quite as good as any of them to-day afford. now make any practical use of the knowl- and industrial schools as well. Only in Our professors may not have been senior edge thus gained. If a merchant wants a this way can the young men of this country clerk who can speak and write German, he be brought to appreciate the real dignity of does not apply to the High School, but looks labor, to realize that there is no more honor young mind so that it may be equipped for amongst those who have been "to the man- on the bench than in the field.—Champion.

SATURDAY, AUGUST 10, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

THE press of Kansas will confer a favor upon us by publishing the following announcement:

The Fall Term of the Agricultural College will open Wednesday, September 4th, and close Wednesday, December 20th, 1878. Tuition absolutely free.

THE most successful business men of America are not college graduates. The great mass of those who to-day guide the manufacturing, railway, commercial and political interests of the nation, never studied the classics or higher mathematics. One of two inferences is fair: either that the ablest boys were not sent to college, or that the drill of business life disciplines the mind as well, for all practical purposes, as that of a college. Many persons speak of education as if they meant graduation, and as if only those were educated who have graduated from some college. When the Creator ordained, "In the sweat of thy face shalt thou eat bread," He endowed and equipped a world's university, in which, through divine processes and impelled by resistless forces, pupils obtain a very practical training that somehow enables them to bear away from collegians the greater number of the esteemed prizes of life. Whether this training be an "education" or not, it serves the same purpose in all the vocations except the professions, and in them to a greater extent than many suppose.

# Mental Discipline in the Arts and

Professional educators are in danger of overlooking the amount of mental discipline necessarily involved in acquiring many of the arts and trades. When a boy is able to read Cæsar he has done a given amount of thinking and gained corresponding mental power. A boy who, beginning with the telegraphic alphabet, becomes able to receive by sound and reduce to writing an average of twenty-five words a minute, has done as much hard thinking as the former; his atthntion, memory and power to think exactly and rapidly have been more severely exercised, and his percentage of gain can not be less. In his subsequent growth from a "plug" to a first-class operator, the amount of mental discipline will be fully equal to that given by the study of Latin in the transition from a freshman to a senior Such an operator can readily command \$1,500 a year. Or, take the case of a printer. Does his hand fly to just the right box of the one hundred and fifty-two, at the rate of seventy-five letters a minute, without any antecedent discipline of the mind? Is correctness in capitalizing, spelling, punctuating, dividing and justifying obtained without hard and constant thinking? Is there less mental discipline in a mastery of the art of job printing than in the study of Latin prosody? It is safe to say that in a match between all the graduates of American colleges on the one side, and all the printers of America on the other, each man to furnish copy for one column of matter, the mistakes of the former would far outnumber those of the latter. And if the study of English and cognate languages disciplines the minds of the former, must not the drill of a printingoffice discipline the minds of the latter? Can any booby shoe a horse, or build a carriage, watch, house, arch, bridge, engine, or compound a prescription?

It is probable that when experience shall have determined the best combination of its original shape, the majority were smelted son's speech on Kansas Education, in 1875.

literary and industrial appliances, a greater mental ability, as well as more useful knowledge, will be the result. So far as muscular strength is concerned, it is immaterial whether a Yale boy trains at the oar or a Kansas boy trains at the anvil, provided the same power be acquired; though the latter can earn a living and the former cannot. And so in regard to mental discipline; the question is, How much mental power can the graduate exert? and not, How long was he in training, or under what system?though the graduate may find that ability to do things which people want done pays better than ability to do that which nobody needs performed.

For the purposes of analysis, it is well enough to resolve woman into the component elements of body, mind and soul, and to consider her education with reference to the functions of each; yet we must be careful to put the elements together again in the shape of a living being, and to regard her education as a unit. Such divisions are theoretical, not actual. A woman without a body is dead, and no man marries a corpse. A woman without a mind is an idiot, and such a wife, no matter how brilliant her beauty, cannot retain a husband's love. A woman lacking moral nature is a fiend, and not until physical pain becomes as agreeable as pleasure will men knowingly marry fiends. The vitality of true marriage is love, and the vitality of love depends partly on the physical, partly on the mental, and partly on the moral nature of men and women. Hence, the natural action of each and all the elements is essential, and if either fails to do its proper work disappointment will strangle contentment. Love cannot continue where confidence is lacking nor confidence where respect is wanting, nor respect where there is an absence of truth or of a reasonable performance of any natural duty. As no sensible woman could really love a brainless Dundreary, so no sensible man can love a wife whose mind is as flabby and forceless as a jelly-fish. Without seeking to determine the relative impor tance of a woman's physical and mental power, and while insisting that both are absolutely essential, it is clear that a large part of wifely work requires for its performance the best action of her mind and soul and, therefore, that they should be developed and trained to the fullest practicable extent, and in the best way.

vested or expended for education an aggregate capital of \$17,820,182.69! Figures may be dry; they often are. But they mean something, and perhaps the thing meant is not dry. What do they mean? What causes have produced these results?

In a bright night the landscape lies silvered, shadowy and dreamy with weird light. If we search for the causes which produce this effect, they are found in the rays of the moon, and in the myriad lesser rays of countless stars, placed at numberless points, away back along endless lines. So is it of the truth-forces which have made these dry figures. They come to us from widely separated regions, and from numberless points along the line of centuries. Some of these ideas were found by the Persians, others by the Greeks, others by the Romans. A few were discovered in the dark cloisters of the middle ages. Many, like deep-buried ores, were unwittingly mined by Luther and Knox, by Bacon and Newton, in their search after other truths. Of these ideas, while an occasional one measurably retains

and beaten into forms of greater utility by the hot revolutions of the seventeenth century. In these forms they were transported from the old world to the new by many different hands: for Puritan and Cavalier; Baptist, Quaker and Hugenot; English, Dutch, French and Scotch-Irish alike served as common carriers. Yet, in the main, all these truths were forged anew by the mighty trip-hammer of the American Revolution on the ringing anvil of 1776.

So that we of to-day are largely indebted for our educational tools and tenets to those heroes, not only of the last century but of the world, who, having framed a Republic, having thrown wide its doors to all nations,. and fully realizing that only upon the intelligence of the people could such a superstructure endure, made the noblest provision for the education of the masses the world has seen. Even as far back as 1787, when the Alleghanies bristled with savages as well as pines, Congress provided for the endowment of common schools and universities in States which should afterwards be formed. And ever since, immigration, like the beneficent river which makes the desert to blossom as the rose, in its sweep through the Mississippi basin, in its trend to the lakes, in its dash up the Rocky Mountain slope, bearing upon its breast the press, the pulpit and school, everywhere and always, has found the sagacity of the fathers to have preceded it; and that, in regions they knew not of, with a grand munificence of which they had no just conception, these fathers had lifted far above even its reach sections sixteen and thirty-six for the schools, and also the 15,000 and 30,000-acre grants, for professional and industrial institutions.

Even more are we indebted to the past for those ideas, seemingly rooted in the very nature of the American immigrant, which cause him to place so high an estimate upon education as something that possesses a real worth. He builds the school-house before the church, and long before the store is thought of. He guards the school endowment as vigilantly as his homestead, and, indeed, considers it as an integral part of that estate which presently he shall bequeath to his own children. And when designing men, rendered bold by his seeming apathy, have sought to cripple the free school or to divert its fund, his spring has been like the leap of the lion in suddenness

Missouri bowie knives and halters, despite guerilla raids and confederate artillery, in the face of drouth and famine, in the very teeth of grasshoppered fields and, still worse, of grasshoppered hearts, has already erected nearly \$5,000,000 worth of educational buildings.

These, gentlemen, are some of the factors which have created the educational capital indicated by the dry figures. And when fairly understood these figures cannot be dry, for they rivet us to a noble past; and, by so doing, greatly empower us for the present. And since we ourselves, and this our day, are but single links in that endless chain with which God binds eternity, they should flash into us something of the fire and sagacity exhibited by the founders of the Republic, and should inspire us with a determined purpose to evince a practical wisdom that shall be found by coming centuries to be as much greater than theirs as our opportunities and wealth are greater than theirs.—Extract from President Ander-

reachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W. Martin, Topeka.

in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying income methods of preventing or destroying insects in imical to the Kansas Farmer.

Special for Woman.—Special lectures on Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

A gricultural College Lands. - These A lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selecpayable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

A Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of Pike's Peak," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "The World a School," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher Topeka, Kansas. Topeka, Kansas.

Drinting!-Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the Industrialist by the Department furnishes advanced students the requisite drill in newspaper work the requisite drill in newspaper work.

Kansas Text-Book, for teachers and students. ELEMENTS OF AGRICULTURAL GE-OLOGY, for the Schools of Kansas, by *Prof. Wm. K.* Kedzie, M. S., of the Kansas State Agricultural

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scinits teachings, and, at the same time, from a scinits teachings. entific point of view, it is rigidly exact."

In two parts: Part First—Elementary Geology Part Second—Origin and Formation of Soils. Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a Contonnial of a walking of more and for walking of more and the secure and for walking of the secure and for walking of the secure and the secur productions. The only kansas House to secure a Centennial award for quality of work. Kansas work, by Kansas mechanics, at this Kansas establishment. Pronounced "faultless."—Felter's series of School Records, made to comply with Kansas laws by a Kansas author and Kansas publisher. The best School Officers' Records in the market.—Felter's Elements of Booktent, and in the best way.

And still more are we of Kansas indebted to the past for that energy and grit by which During the last ten years Kansas has inthis State, just entering its teens, in spite of this State, just entering its teens, in spite of this State, just entering its teens, in spite of the past for the printed in Kansas.—The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for twenty-five cents per annum.—The best Railroad, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment of the control of the contro ment for Kansas equal to the best in America.

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The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixty-four pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case, Wayses City Mo.

Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, when the second purposes among its contributors some &c., &c., and numbers among its contributors some &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific. and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the Review and add to its attractiveness and usefulness by suitable illustrations, and in every other 33-47

SATURDAY, AUGUST 10, 1878.

A. H. Stiles is attending the Alma Institute.

The political kettle has begun to sizzle. Let her

The heat drove the workmen off the building

Notwithstanding the hot weather, the pine trees on the campus are doing finely.

Mr. Failyer says that several new students are coming up from his part of the State.

The Davis County Fair will be held at Junction City, on the 9th, 10th and 11th of October, 1878.

The indications are very favorable for a large attendance at the College during the coming year.

The Topeka dailies are complimenting Joe Williamson on his fine tenor voice. Well might they

Seventy teachers are now enrolled in the Normal Institute. Several more will be added to the roll next week.

Mr. and Mrs. Walters are happy on account of the arrival of a crown prince. Walters says he will call him Bismarck.

The Leavenworth Freie Presse has a good article in favor of a more practical education for women. We shall translate and publish it as we find space.

Two litters of as fine Berkshire pigs as the State contains were farrowed on the College farm this week. Those desiring to purchase must speak early.

The ampelopsis on the President's porch is stretching itself to a dangerous length. If not soon checked in its growth, it will beat Baron Von Munchhausen's wonderful moon beans.

G. W. Randel and wife, of America City, Nemaha county, visited the College last week. They came down to rent a house for two sons and a daughter who will enter the College in September.

The next term opens three weeks from Wednesday, and we hope to see many of the old students at that time. Bring along as many new students from your respective localities as will come.

The inquiries about the College are on the increase. We received nearly fifty letters and postal cards last week requesting circulars and other documents giving information about the Institution.

A number of the new students who are coming desire to rent rooms and board themselves. Any parties having rooms to let will confer a favor on A. A. Stewart by informing him of the fact, giving full particulars as to terms, etc.

Prof. D. E. Lantz, the new principal of the Manhattan public schools, arrived here with his family last week. The teachers attending the Institute are much pleased with him. Although comparatively a young man, he is said to be an able, earnest and enthusiastic educator.

The heat has been simply fearful the past week. In the shade the thermometer has ranged between ninety and ninety-eight, and when placed in the sun for a few moments only, it has run up to 114°. Four or five cases of sunstroke have occurred near here, and two or three of the men on the new building have given out at different times. Give us a rest from such roasts!

Mr. G. H. Failyer, a former graduate of the College, and at one time Prof. Kedzie's assistant, has been employed to take charge of the Chemical Department, temporarily at least. Mr. Failyer is too well known here to need any introduction. As a student he had no equal; he was the valedictorian of his class: and before and since his graduation, he has made the natural sciences his special

Two Swedes from the upper part of the county came down to Manhattan last Wednesday, and during the day became fearfully intoxicated. In the afternoon, they drove to the north part of the city, fed their horses, and laid down in the wagon. A short time afterwards, some one passing found that one of the men, the father, was dead and the other, the son, in a precarious condition. The man who sold this father and son the poison that has killed one and nearly destroyed the other, should be sued for murder.

On Thursday last we visited the Riley County Teachers' Institute, now in session at the new school building in Manhattan. In the aula we found a bright and cheerful looking class of fifty or sixty teachers, listening with interest to an able discourse, by Prof. Lee, on the formation of plurals. Evidently the Professor was in his sphere; for dry as is the subject in itself, he held the eyes of his pupils spell-bound. Prof. Platt then gave a

short lesson in vocal music. Often before we have seen and admired him in the class-room. He seems to be made to teach music; always cheerful himself, happiness and peace radiate from his face like warming sunbeams. The exercises closed with a lecture on didatics, by Prof. Lantz. He spoke of the mental faculties of pupils; showed how perception, memory and reason formed the grand wheel-work of the human mind; how perception came first, memory afterwards, and reason still later on, or sometimes not at all; and how nicely these things had all been brought under heading and sub-heading by Pestalozzi, Rosseau, Hegel, Kant and others. It sounded like old times to us, surrounded as we are now by industrial drift and clatter.

After the exercises were closed, we shook hands with County Superintendent Billings, who personally supervises the Institute and, as we understand, teaches some branches himself. We repeat here what we remarked to him there: The Riley County Institute is a success this year.

And now comes the best wheat report that has reached us. Hunter Houston, eight miles southwest of Junction City, has threshed nine acres of Fultz wheat which yielded 450 bushels. And in a crop of 1,500 bushels, the average yield was fortynine bushels to the acre. This is the best yield that has come to our knowledge.—Junction Union.

#### ENTERPRISE ITEMS.

Prof. A. J. Pillsbury has gone to Clyde.

Fifty-two teachers were enrolled at the Institute Monday morning.

A field of wheat in Pawnee county averaged sixty-five bushels per acre.

The storm last Friday, while it lasted was the most violent of the season. Many trees were blown down and considerable damage done to

Judge Emmons ships on an average one hun-boxes of peaches per day, each containing a third of a bushel, and his shipment of tomatoes almost equals that of peaches. He has also shipped a large quantity of apples.

The County Commissioners met on Monday and levied a tax to the amount of 1½ per cent, for running expenses and school bonds. The commissioners refused to levy any tax for the interest on railroad bonds. The petition asking them so to refuse was signed by over 1,100 names.

#### NATIONALIST ITEMS.

Charlie McConnell returned from Salina Sunday. Maj. Adams was still confined to his house at last reports.

Prof. Kedzie, with his household goods, left this week for Oberlin.

The town clock can be distinctly heard at the Davidson place (on old College Hill).

Wednesday afternoon Hon. Welcome Wells was sunstruck, on his way home from Manhattan.

Mr. G. H. Failyer is in town. He is a talented young man and may become Prof. Kedzie's successor.

Prof. Ward has converted the parlor of the house formerly occupied by Mr. Jeff Davis into a study and library.

Students are already beginning to arrive for next term at the College. They can put in the time very profitably at the Institute.

Mrs. Griffin's garden was very badly injured by the storm on Friday evening. Over twenty colens were broken down, and many other plants shared

President Anderson delivered his lecture on Kansas this week, before the Normal Institutes as follows: Salina, Monday; Ellsworth, Tuesday; Oskaloosa, Wednesday; and Minneapolis, Friday.

During the last storm, three cattle and a horse belonging to S. Whitney, two cattle belonging to S. A. Sawyer, and one horse belonging to Harry Hougham, were killed by lightning in French's

# DIRECTIONS TO APPLICANTS.

# TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of

to their advantage to be present at the opening of each term, or as soon thereafter as possible.

GRADES Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously

the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in the College wholly depends upon his own action. The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed number of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

There are no charges whatever for enrollment attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male stu-dents taking either of these are charged \$1 per

month for use of instruments.

Instrumental music is a fine art or "accomplish-Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pignes or requires. the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as rurnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students 'desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.—Manual labor in the reci-ations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. - When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

# AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery During the year he can ordinarily acquire suffi-cient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

# RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

# PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Department, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Educa-tion. Price, 75 cents a year. Address A. A. Stewart, Manhattan.

# CALENDAR.

Spring Term 1878.—Began Thursday, Jan. 3d, and will close Wednesday, May 22d.

Full Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

# TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

#### LITERARY SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in College building every Friday at 2 p. m. Ladies admitted. New students cordially invited to attend. GEORGE L. PLATT, President. MISS ESTELLE BOUTON, Secretary.

Webster.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. Lewis A. Salter, President.

TULLY SCOTT, Secretary.

#### RAILROAD TIME-TABLE.

#### KANSAS PACIFIC RAILWAY. PASSENGER ARRIVES.

...... 12: 20 р. м. Going West..... 4:10 P. M.

FREIGHT ARRIVES.

Going East...... 2:55 P. M., and 10:30 P. M. Going West...... 6:20 A. M., and 9:00 A. M. Passengers with tickets are carried on any of

he above-named trains. GEO. C. WILDER, Agent.

relegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

S. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reck-oned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Powyth Avenue, Manhetten Poyntz Avenue, Manhattan.

Dress-Making and Millinery.—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26

The Farm Department of the Agricult-ural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the high-est breeding. Address E, M. Shelton, Manhattan,

Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

rglish Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Manhattan Bank.—E. B. Purcell, Banker; Jno. W. Webb, Cashier. A general banking business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

athematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Club Rates .- The regular price of the Kanpublished by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the Industrialist for \$2.75; or the Farmer and Industrialist for \$2.25; or the American Young Folks and the Industrialist for \$2.25; or the American Young Folks and the Industrialist for \$1.00.

Board of Regents.
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W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches and upon the through education depends upon the kind and aim of the knowledge it teaches, and upon the thorough-ness of the instruction therein. The State Agricul-tural College was directly endowed by Congress, and is guided by the State, for the specific pur-pose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION. Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

# FARMER'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Practical Geometry. 4. Horticul., Landscape Gardening. 5. Organic, Analytical Chemistry. 6. Practical Surveying.	<ol> <li>Physiology.</li> <li>Rhetoric.</li> <li>Algebra.</li> <li>Practical Agricul. (elementary).</li> <li>Physics.</li> <li>Industrial Drawing.</li> </ol>	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arithmetic, Book-keeping. 6. U.S. History, Industrial Drawing.

WOMAN'S EDUCATION. Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

	WOMAN'S	COURSE.	and Lagrer 1987
FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Farm Economy, Special Hygiene 2. Geology, Mineralogy. 3. Politi Economy, Practical Law 4. Zoology. 5. Phys'c'l Geography, Meteorology 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Industrial Drawing. 4. Horticul., Landscape Gardening. 5. Organic, Household Chemistry. 6. Household Economy.	1. Physiolo 2. Rhetoric 3. Algebra. 4. English 5. Physics. 6. Industri	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arith, Book-keeping. 6. U.S. History, Industrial Drawing

# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic we reply that

knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS

INDUSTRIAL DEPARTMENTS.

Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent: FOR FEMALE STUDENTS.

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

Dress-making. Dress-making.
Printing.
Telegraphy.
Scroll-sawing.
Carving.
Engraving.
Photography.
Instrumental Music.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

# DEPARTMENTS OF INSTRUCTION.

DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE. Second Year: - General principles of breeding; history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage. tion of corn and roots; soils that need drainage how to lay out a system of drains; house drain-

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; genera-advantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; ma-nures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY. Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

DEPARTMENT OF BOTANY AN PRACTICAL HORTICULTURE.

This department embraces a course of instruc-This department embraces a course of instruction in the elements of botany, structural and systematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practical drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of pruning; the orchard: fruit suitable for orchard and or commercial and farm nursery; modes of pruning; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

#### CHEMICAL DEPARTMENT. PHYSICS.

This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to pounds, are next considered in succession as to their history, properties, manufacture, and espe-cially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboraCHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composition, when it is a composition of the composition and their adaptation and the composition ours; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Text-book, Johnson's "How Crops Feed."

METEOROLOGY.

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity; laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observations is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY. This includes the study of the laws of crystallog-raphy, with the properties, forms and uses of the principal minerals of the United States. Blow-pipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composition of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of fruits, etc.

Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE. Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called land.

the course is to make the student skillful and intelligent in handling the machinery called language, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the student.

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."-Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications,
variations, relation and dependence.

Sentences: Drill in statement of ideas; descrip-

tion, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of com-positions printed as written; proof reading; gram-matical construction; superfluous words and clauses; drill in reading, speaking and penman-

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter
the printing class, the printing-office being the
work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS.—The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the topics included are:

Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech.

Stems: Their derivation; their offices and prop-

erties; their relation to other parts of words.

Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems.

Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be cheaved in

dance in English; the principles to be observed in choosing among them, to express a thought.

\*Criticism: This constitutes a prominent part of

the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the

in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and the reason of the verbal forms and maxima he is to remember. changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT. Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given operations are performed, but because they can neither add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calcuand sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

ALGEBRA. Algebra is included in the course as a preparation for the study of Surveying. DRAWING

The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this branch of mathematics is quite as important as a hardly be overestimated, first, because its study is taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topothical Desired daying the terms indicated by graphical Drawing, during the terms indicated by the Course of Study. In addition, constant prac-tice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Department.

PRACTICAL GEOMETRY.

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renthe mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with special guidance as is found measure for a of the engineer is accordingly supplemented such special guidance as is found mecessary for a full comprehension of the mathematical principles and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to woman.

woman.

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading "Farm Economy." heading, "Farm Economy."
GARDENING is included in Practical Horticul-

ture. See heading, "Landscape Gardening." HOUSEHOLD CHEMISTRY. See heading, "House-

hold Chemistry."
HOUSEHOLD ECONOMY Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlastingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry — and no more expensive.

Published every Saturday by the PRINTING DEPARTMENT OF THE

# KANSAS STATE AGRICULTURAL COLLEGE

TERMS OF SUBSCRIPTION, 75 cents per year, postage prepaid. Ten cents per month, postage prepaid. Payment absolutely in advance! Paper stopped at expiration of subscription.

Address A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

Normal education:	1.13=	1.13
Professional education:	0.43	
Lawyers	0.55	
Doctors	0.73=	1.71
In agriculture	59.13	
In manufacturing and mechanical	14.63	
In personal serviceIn trade and transportation	9.51=	97.16
		00.00

# AGRICULTURAL COLLEGE.

Recognizing the need for an education which Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT.

ENDOWMENT. The endowment received from the United States Government consisted of 81,601 acres of choice Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with for the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainter. not dependent upon the tax-payer for its mainte-

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter. LOCATION.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving and music. COURSE OF STUDY.

### Agriculture Favorable to Knowledge.

[An Essay read by S. T. Hopson, of Pioneer Grange, before Macocoupin County (Ill.) Grange, June 8th, 1878, and afterwards published in the Cincinnati Grange Bulletin.]

There is a prevailing impression, especially among young men of intelligence, that the pursuit of agriculture is unfavorable to the pursuit of knowledge and the general cultivation of the mind; that the life of the farmer is a life of toil and drudgery, without any stimulus or opportunity for intellectual improvement; and that if a farmer is intelligent, he is so in spite of the earthly degrading tendency of his occupation. We maintain just the opposite view; that the occupation of the farmer is favorable to the pursuit of knowledge, favorable to intellectual health, activity and vigor of mind. So that, if a young man has a taste for knowledge, he should for that very reason be a farmer, because he can thus gratify his taste for knowledge better than in any other calling.

The life of the farmer is favorable to the pursuit of knowledge because it is favorable for health. The farmer, who breathes the fresh air and listens to the song of birds, and sees so much in nature to interest him, is seldom troubled with hypochondria, dyspepsia and indigestion, which are as injurious to the pursuit of knowledge as to health and happiness. Can there be any doubt that the occupation which gives such health and cheer to the farmer is favorable to the development of the mind and the pursuit of knowledge, especially when we consider the intimate connections between health of body and health of mind, and how many minds are necessarily feeble, stinted and "sickly" because dwelling in a sickly and feeble body?

The farmer has "leisure" for the pursuit of knowledge. Aside from the leisure which winter evenings, rainy days, and intervals between hurrying scenes of labor, he can snatch a few moments almost every day, or an hour, for reading, "if he has a desire for improvement." If the farmer chooses to spend his leisure at the stores or taverns, or in idle vacancy, dreaming and dozing away his life, working like his ox, and like his ox only eating and sleeping, he can do so; but let him not blame his occupation, for if he The farmer, on the contrary, has facilities but because it will furnish him with food for thought, reflection and inquiry during the day, - his work, much of it, being of such a nature as to afford him opportunity for digesting what he has read, especially if it relates to agriculture.

The reason many farmers are not more intelligent is not because they have no more leisure, but because they do not improve their leisure. The most ignorant farmers are by no means the most industrious. Some of the most industrious, efficient farmers of my acquaintance are the most intelligent also. Nor does their intelligence make them lazy, but rather stimulates them to exertion. They take hold of labor, too, with more zeal and interest, and feel less tired at the close of the day than the mere drudge whose vacant mind is uninterested in what he sees and does. The man who is to work on a compost heap will not do less but more work if he spends a few moments in reading an essay or lecture on manures, so that he may labor intelligently. Agricultural pursuits have a healthy influence on the mind, and thus favor the pursuit of knowledge.

the tormenting anxiety and perplexity of the merchant and trader; on the other hand, from the dullness and monotony of the day laborer, or the mechanic who does the one thing the year round. The influences that surround the farmer are as beneficial to health of mind as to health of body; hence, if a man has a taste for knowledge, he may choose the life of a farmer as being well adapted to gratify his taste. The occupation of the farmer affords him an opportunity to cultivate an acquaintance with the natural sciences, and is thus favorable to the pursuit of knowledge. The shoemaker or blacksmith may be interested in studying meteorology, but his daily occupation does not like that of the former give him or and not, like that of the farmer, give him an opportunity to observe the weather, the wind, clouds and storms, and their influence on vegetable and animal life. The book of nature is constantly open to him, inviting him to read her laws. The investigation of the laws of nature affords a pure and exalted source of happiness,—but who is so favora-bly situated to investigate her laws, "while pursuing his appointed labor," as the farmer? Who can so well learn the laws of vegetable life as he who is constantly experimenting on those laws? Who can so well observe flowers, grasses, plants, grains and trees, and their habits, as the farmer, whose business is to cultivate them and bring them to perfection.

The practical advantage to be derived by the farmer from an acquaintance with science, renders his occupation favorable to the pursuit of knowledge. The natural sciences, botany, geology, chemistry, and many others, are not only interesting in themselves, but intimately connected with the farmer. It is by the aid of these sciences that the great improvements in agriculture have been made in the past few years, and that we may expect improvements hereafter. If the farmer will not study science because it is not interesting, he must study it because it is "useful," because it is necessary to the successful cultivation of the land. However interesting science may be, the great mass of laborers, having little leisure and no particular taste for science, do not pursue it even professional men do not. They have not stimulus to pursue it as the farmer has. only to enrich his mind with knowledge, but to enrich his farm, to improve his fruit and stock, to fill his barns and granaries. Formerly it was thought the farmer had no need or use for knowledge.

The pursuit of agriculture is favorable to general development and cultivation of the mind. It furnishes a home for his family,-a pleasant, rural home, one of the most essential means of moral, social and intellectual improvement. The farmer and his children are free from the temptations to vice, to intemperance, idleness and crime, which are the bane of intellectual improvement. His life is one of independence and luxury compared with all other vocations and he and his family can always enjoy a freedom of thought and action, so desirable by those who are able to appreciate it.

# A Good Education.

"To read the English language well, to write with dispatch a neat, legible hand, and be master of the first four rules of arithmetic, so as to dispose at once, with accuracy, of every question of figures which height of eighty-five feet above high water. comes up in practice. I call this a good This immense iron structure was six years The farmer is free on the one hand from education. And if you add the ability to in building, and cost \$1,750,000.

write pure, grammatical English, I regard it as an excellent education. These are the tools. You can do much with them, but you are hopeless without them. They are the foundation; and you cannot hope to acquire a good education unless you begin with these, and not with flashy attainments, a little geology, and other ologies and oso-phies, which are ossentatious rubbish."

The above definition of a good common school education was given by the late Edward Everett, one of the ripest scholars in the United States, and every practical business man will admit that this brief paragraph expresses the exact truth. The public school system of the whole country is attempting too much altogether for the public good. Enthusiasts and school men have been carried away with the high-sounding theory of fitting every boy and girl for the professorship of a college. In their zeal for educating the masses, the fact has been overlooked that where there are a hundred fitted by natural abilities to become professors, there are other tens of thousands who have neither the desire, natural capacity or opportunity to be students or professional teachers, but have the ability to acquire and the right to receive, a plain, useful edu-cation. Losing sight of this fundamental truth has cost, and is costing the tax-payers of the country, millions of money yearly which is virtually wasted. There is a great deal of the elaborate trumpery playing an active part in public school education throughout the country which will have to be laid away in the dusty lumber rooms where so much of kingcraft, priestcraft and other kindred humbugs of the past have been stored. The sums of the people's money which are yearly wasted in cramming public schools with text-books is appalling. The tax for school purposes in many of the old States which are not fortunate in having land endowments, is 25 to 33 per cent of their entire tax. An educational tax is one of the most valuable investments that can be made, but a waste of resources on any object however worthy cannot be defended.

The education demanded by every boy and girl from the State is comprised in the brief sentence above quoted, by Edward Everett, and that should be thorough. If extra branches are desired, let those aspiring youths seek them in the private academy, seminary or college. The State has performed its duty as an educator when it has fitted every child between the ages of six and fifteen years with those branches which enable him to prosecute successfully the numerous occupations which nineteentwentieths of the people who earn their bread are engaged in.—Kansas Farmer.

THERE are over 25,000 flouring mills in the United States, employing 60,000 men.

In the San Joaquin valley, California, there are 1,000,000 acres in wheat, averaging 20 bushels to the acre.

THE toad has risen in the scale of being to a recognized use and a definite market value. These despised reptiles have proved so useful in destroying insects that they are readily sold in the Paris markets at seventyfive to eighty francs per hundred — about four cents apiece. Most of them are said to be bought up for service in English market gardens.

THE longest railroad bridge in the world crosses the Firth of Tay, near Dundee, Scotland. It was built by the North British Railroad Company, and opened for travel in September last. It is nearly two miles long and has eighty-five spans, with a clear

SATURDAY, AUGUST 17, 1878.

JNO. A. ANDERSON, Managing Editor. ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

THE press of Kansas will confer a favor upon us by publishing the following an nouncement:

The Fall Term of the Agricultural Col lege will open Wednesday, September 4th, and close Wednesday, December 20th, 1878. Tuition absolutely free.

PRESIDENT ANDERSON'S nomination for Congress will cause no change in the management of the College during the coming

THE farmer needs a thorough and direct education as much as does the physician. Both deal with the subtlest of forces - life! The one seeks to control the conditions on which human life depends; the other, those on which animal and vegetable life depend. The one grapples with the diseases of an impaired body, and his battle is usually short and decisive; the other struggles to win from earth and air that food without which all bodies must perish. His battle is longer, less exciting, but none the less decisive; for continued defeat brings poverty, and grinding poverty brings exposure, exhaustion and diseases that laugh at medical skill. There is no apparent reason why a direct education, as valuable to the farmer as is the best medical training valuable to the physician, cannot be provided.

### 540 vs. 1,094.

A writer on political economy claims that the consumption of soap may be taken as a true indication of the degree of civilization among different nations. Another writer tries to show that the number and size of the newspapers published in a country give a reliable ratio of culture. Still another one says that the number of letters passing through the post-offices of a country solve the problem nearest correctly. While these three gentlemen are perhaps Americans, feeling happy to see their side of the scale overbalancing, a Frenchman figures it out that a nation can claim to be enlightened proportionately as her members are carrying watches; and a German proudly points to the educational reports of his "Vaterland," showing that the number of schools and higher institutions of learning must furnish the only correct dynamometer.

While such claims are interesting and suggestive, - every one of them, - they are not absolutely true, because they all differ in their practical results. How would the United States like to take the number of telegrams sent per capita as an indicator of the qualities alluded to? In Europe, India and this country, the average annual number of telegrams sent is 165 to every 1,000 inhabitants. Switzerland sends 1,094, and stands proudly at the head of the column; Great Britain sends 690; Holland, 610; the United States, Belgium and Denmark, 540; Norway, 408; Germany and France, 297; Spain, 93; and Russia, 48.

But if our sister Republic does not double us in civilization, where can we find an explanation of these statistics? In Switzerland the telegraph belongs to the government, as does the mail service in the United States. Private enterprise could never have given us the admirable mail system which we are now enjoying, and private enterprise will never give us the telegraph system which we need .- J. D. Walters.

#### Her Rights.

A girl has a right to an education as precisely adapted to a woman's work as is the boy's preparatory to man's work. She has a right to study her own organism and functions, to understand the conditions of health, and to be forewarned against the inexorable penalties of ignorance, folly or over-taxation. She has a right to instruction respecting the proper care of the sick, for a mother's watchfulness and a wife' tenderness, when intelligently directed, are more potent than drugs in the struggle with death. Not that she is to receive the physician's education, for we are not speaking of the physician's work, but a woman's education for that divine work which woman has always performed in every race, and will perform so long there are moaning children to soothe and fevered brows to cool. She has a right to instruction and practice in the art of making and cutting her own clothing tastefully; in the art of cookery; in that of setting a table, brightening a room, beautifying a garden; in short, to all the knowledge which related sciences can contribute to her intelligence definess and efficiency in that greatest and purest of womanly arts, the art of making home brighter to the little ones than streets more attractive to its adults than saloons,a quiet nook whence the pilgrim of threescore-and-ten boards the ship that sails out into eternity's ocean.

These are things which men cannot per form. Since the world began, and because of the division of labor ordained before i began, they have distinctively belonged to woman as woman. Her patent to them is freshly written, generation by generation, in the full promptings of her own nature Her commission to do them issues from a higher authority than that of fashion, ambi tious fancy, or the ignorance induced by a traditional education which has created a greater distaste for home duties than any other one element.

INDUSTRIAL institutions cannot afford to follow in the beaten path of mathematics. They must have text-books written to meet the necessities of industrial life and designed to make the student skillful in the use of mathematics as a tool. Until such works are prepared, the hand-books of the several trades are safer guides to the teacher than those written for the purpose of re-establishing each step by which principles have pupils and students enrolled in the public been reached, and of illustrating minute details by problems that are as useless as Chinese puzzles and far less amusing. Every problem suggested by the requirements of industrial life has been solved and formulated; and the simple question is whether the student is to be empowered to make an intelligent use of the labors of the best mathematicians of centuries, or whether he is to be so educated that he could replace the formulæ needed in business in case all mathematicians and books should be suddenly annihilated. The cost of preparing industrial students to meet such a danger is far greater than the danger itself. Of course, the opposite extreme of simply qualifying the pupil to translate a trade formula is equally to be avoided. Were nothing more than this necessary, his education would be finished when he had procured a handbook. He should as thoroughly understand the mathematical principles applied in his business as a stock-raiser should understand the laws of breeding; but it is no more essential that the former should master principles only used and applied by the astronomer than that the latter should understand the anatomy of the mastodon.

#### Fair Questions.

By direct taxation alone, in the year 1874, nearly a million of dollars, \$969,414, was raised for the current expenses of the educational machinery of Kansas. Who are these tax-payers, and what are their circumstances? Was the levy made on the property of men only, or on that of widows and orphans as well? Does this property lie in the cities only, or does it form the length and breadth of the State? Was it owned by the rich alone as an investment of surplus capital; or by lawyers, doctors and preachers alone; or by men of science and elegant culture alone; or, on the other hand, was the bulk of it owned by farmers and mechanics? Was this tax, in all cases, met out of the profits of a year's labor, or were there thousands of cases in which men and women, laboriously toiling in shop, field or kitchen for a stinted living, barely squeezed their quota from out the very dregs of poverty?

For what purpose is this tax levied? Simply because the law commands? By no means; for should such become the will of these persons, that law would not retain a year's life. On the other hand, do people pay taxes just for the ecstacy of the operation? The dollar which buys a tax receipt is of exactly the same value as that which buys flour. It is as laboriously earned. And though expended by the State for the common weal, is it to be handled upon different principles from those which govern an individual's dollars? Are the people's agents who manage the State educational business justified in providing one educational article when a better article can be provided at the same cost? Is the course of study followed in the public schools designed to furnish that training which will be of the greatest value to the largest number of pupils? Is the knowledge acquired in these schools that which will be most used by the mass of scholars in after life?

Such questions as these are thundered out by the dry figures. They are not "voices of the past." These characters are not as the fossil imprints of birds that died ages before the advent of man. They are the rightful questionings of parents respecting the best education of their own sons and daughters, which we must stand ready to answer in the settlement of our accounts with the people as principal. Toil is real, money is real, taxes are real, responsibility is real. This whole educational business is not only a business, and therefore to be governed by the great principles of justice, sagacity and energy, but it is also a terribly real and responsible business,—one fraught with financial obligations to tax-payers, with personal obligations to parents, with educational obligations to pupils, with moral obligations to the State, with civic obligations to coming generations of the Republic; in short, with full responsibility to Him who stands back of all these relations, by whom they were created, and to whom, as the great proprietor, we must also fully account.

These and kindred questions are essential parts of the aggregate meaning of the dry figures. On this occasion they are fair questions: first, because they may be rightfully asked by the people of those entrusted with public business; and, second, because they under-run the very foundations of the educational temple. And I beg to assure you that they are presented in no captious spirit, but solely in the hope of attracting the earnest attention of teachers, superintendents, directors and the friends of education to the query: Whether the present system gives to the people the full value it may be made to render?—Extract from President Anderson's speech on Kansas Education, in 1875.

Educational Calendar. - A spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W. Martin, Topeka.

Habits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds Special attention paid to the habits and be methods of preventing or destroying insects in imical to the Kansas Farmer.

Special for Woman.—Special lectures on Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

A gricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in equal annual payments with ten per cent interest, equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "PRENTIS IN EUROPE;" "PIKE OF PIKE'S PEAK," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "THE WORLD A School," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher Topeka, Kansas.

Printing!—Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST by the Department furnishes advanced students the requisite drill in newspaper work.

A Kansas Text-Book, for teachers and students. ELEMENTS OF AGRICULTURAL GEOLOGY, for the Schools of Kansas, by Prof. Wm. K. Kedzie, M. S., of the Kansas State Agricultural

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact."

In two parts: Part First-Elementary Geology Part Second — Origin and Formation of Soils. Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure? Centennial award for quality of work. work, by Kansas mechanics, at this establishment. Pronounced "faultless." establishment. Pronounced "faultless."— Fel-ter's series of School Records, made to comply with Kansas laws by a Kansas author and Kansas publisher. The best School Officers' Records in the market.—Felter's Elements of Bookkeeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.— The Annals of Kansas, a marvellous history of Kansas, written and printed in Kansas.— The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for Teachers and Patrons of Kansas schools, for twenty-five cents per annum.—The best Railroad, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment for Kansas equal to the best in America.

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The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixty-four pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case,

Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country. Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

popular taste. Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

SATURDAY, AUGUST 17, 1878.

Say, you Enterprise fellow, what do you mean by a "respiring brow"? Respiring may be good, but wouldn't perspiring be better?

Jasper G. Cowell, a student from Clay county, called on us to-day, having with him some lady friends. He will be on hand again next term.

G. E. Patrick, Professor of Chemistry at the Kansas State University, dropped in upon us on Thursday last. He passed our town, returning from a geological expedition. .

The Minneapolis Normal Institute Record says: "We went, gone and done it. Yes, we had our pictures taken, we did." The whole Institute sat for the picture, but it was very difficult it seems to bring so large a number of "marms" to a focus.

The August number of the Western Homestead contains, among other valuable articles in its sphere, a page of nonsense worth alone the price of the issue. It takes talent to produce good nonsense - such nonsense as that.

Several young ladies desiring to work in families for their board and attend College have written to us, asking if such arrangements could be made. If any Manhattan families desire such assistance, they will greatly oblige us, as well as the young ladies, by making known that fact.

Among the many visitors which we received this week at the College was the veteran editor and typo, Col. Prouty, of the Junction City Union. We mention him in particular because it took so much tight squeezing or twisting for him to get through the turnstiles, and yet he kept up his usual good

On Tuesday last we received a pleasant call from Thos. R. Moore, one of our students from Smith county. He was on his way to Kansas City, and stopped off at Manhattan to make arrangements for the coming term. He says that Mr. Wyland and another young man from his town are also preparing to return.

We were much pleased to meet our old friend W. D. Gilbert, of Atchison, this week. He came over to see the fun at the Congressional Convention. Mr. Gilbert is a graduate of the class of '74, and is a true blue young man. This is his first visit to Manhattan since his graduation, and he was surprised at the changes which have been made in the last four years.

The Industrialist is purely an educational paper, has never and does not now intend to allow anything of a political nature to enter its columns. Knowing, however, the love which both present and former students have for bighearted, generous President Anderson, we feel justified in publishing for their benefit the following notice of him and his candidacy for Congress. It is an extract from the first lengthy editorial written in regard to the Congressional nomination, and is taken from the Leavenworth Times, which formerly advocated the return of the Hon. Wm. A. Phillips:

But aside from local considerations we think, as we have previously stated, that the best, by all odds, among the new names brought out, was that of John A. Anderson. He is a man who is large enough for the whole district, and one who will do credit to the State. He is a man of ability, of integrity, and of extraordinary mental power. He is not only a fair man, but a strong man, and in all the qualities that go to make an able and effective member of Congress, he stands above all the other new candidates presented to the Convention, and the present of the power of any man in the State. To brill the present of the power of the present of the state. and the peer of any man in the State. To brilliant talent he adds an unimpeachable moral character and unconquerable energy. He is a genial, social, whole-souled man, makes friends wherever he goes, and is best liked where he is best known. He is a gentleman of culture and education, and is a fair specimen of "the scholar in politics." He is a ready, forcible speaker, and is strong enough to cope with the best men in Congress. He will make a representative that not collaboration of the scholar in the district but the control of the scholar in the district but the control of the scholar in the scholar only his district but the entire State will have reason to be proud of.

During the past week Manhattan has witnessed a political excitement on her streets and in her parlors and halls that will be remembered for years to come. We refer to the Congressional Convention of the First District of Kansas, which was held here, resulting in the nomination of our worthy President, John A. Anderson, for the honorable position. The city was thronged with delegates, editors, politicians and spectators from all parts of the State. Many of these visitors took advantage of this fine opportunity to see our Institution, and some of them made arrangements to send their sons or daughters the coming term. At times the campus and buildings literally swarmed with strangers. As the College enjoys vacation now, and as it relies on students for the necessary labor, perhaps to many the walks looked rather weedy and the lecture rooms empty, dusty and deserted; yet the general impression seemed to be very satisfactory. We saw many old faces and

heard many sincere voices express a happy surprise in regard to the realization of their own thoughts and ideas of practical education in our Institution. The grangers, of course, made their headquarters at the barn, measuring Mr. Galloway and Mrs. Jersey; the bachelors of science seated themselves coolly among the bottles and compounds of the laboratory; the horticulturists inspected the nursery; and, while they all talked of their favorite "isms," the editors gathered in the sanctum of the Industrialist. "Birds of a feather flock together."

We do not remember all of the names which have been hurled at us, though perhaps we remember most of the faces. There were Tom Hughes, the Marysville News man; D. R. Anthony, the chief of the Leavenworth Times; Prouty, of the Junction City Union; Fleischer, of the German Courier; Baker, of the Norton Bee; Smith of the Concordia Empire; and others. Through our exchanges we had known these gentlemen for years, and when we met with them face to face it seemed like meeting old acquaintances. Well, call again, brothers.

#### ENTERPRISE ITEMS.

The Adams House has about fifteen extra hands employed during the session of the Convention.

We understand that the contract of taking care of the new school-house was let for \$125 per year. There are 575 school children in this district this year, an increase over last year of 63. Kansas is a very productive State.

Manhattan has the best fair grounds in central Kansas, and the managers are making great exertions to make the Exposition a success

Mr. C. Cameron, of the commission house of Goodson & Co., St. Louis, dropped in on Monday. He says he gets the boss butter from this vicinity. It is the intention of this firm to have ageneral display of Kansas products at the coming St. Louis Fair.

### NATIONALIST ITEMS.

Mr. Ulrich has another contract of shipping cut stone to Salina.

The irredeemable paper money men of the first district are talking of nominating Elder Gale, of this place, for Congress.

One-fourth each of sand, leaf mold, chip dirt and well decomposed manure, makes an excellent composition for putting your house plants in for

Last Thursday John W. Webb was re-elected treasurer of our school board by a vote of 126 to 89 for Wm. Beverly. The vote was affected somewhat by the Congressional contest.

It has been remarked by every one again and again that the delegates to the Convention are superior in appearance to the usual attendants. indeed, we don't remember having seen so much dignity, sense and independence in one body

In consequence of the excessive amount of rain during the past six weeks, farm work is generally behindhand, and many products are not in good condition for exhibition. The directors of the Fair Association have, therefore, decided to postpone the fair at this place until September 24–27.

Last Sabbath morning, while Dr. Stillman's little daughter was playing in his office, she got a box of Gelsiminum pills, and before she was found she had eaten some of them. It was not known at the time that she had eaten any of them, but in a few hours she began to have spasms, and died in about fifteen minutes after they commenced, which was about four hours after she had eaten

Messrs. Spilman and Hessin ran away last week Of course no one suspected them of doing such a thing. As it ended, it was not so bad as it might have been, we are glad to say. Their horses were frightened by the train east of the Blue river bridge and attempted to run; both men sprang from the carriage to hold them, but they escaped and smashed up things generally. The gentle-men returned to the stable and started off again at a more moderate rate.

A little anecdote relating to Col. Prouty is toldwe will not say by whom. It is well known that the Colonel is, well, not particularly fragile. One day during the Convention, while he was down town looking after the interests of the constitu-ency, two ladies at the house where he was stayency, two ladies at the house where he was staying put on his linen ulster, left hanging in the hall (as the manner of fat men is), and found it an admirable fit—they both just filling it out nicely. The only difference in their appearance on their promenade was that they made a two-faced Prouty, and we never heard him accused of anything of that kind.

# DIRECTIONS TO APPLICANTS.

TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil

must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the appairs of to their advantage to be present at the opening of each term, or as soon thereafter as possible.

GRADES Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously

the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed number of recitations; and no one will be permitted to have less than one industrial and three literary recitations. recitations.

#### RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

#### EXPENSES.

There are no charges whatever for enrollment attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 permonth for use of instruments. month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

#### LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.—Manual labor in the reci-ations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. - When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

# AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make onehalf their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire suffi-cient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do then offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

# RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

# CALENDAR.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

# TO NEW STUDENTS.

Bring the text-books you have been using. On Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after above for expellment.

#### LITERARY SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870.

Meets in College building every Friday at 2 P. M.
Ladies admitted. New students cordially invited to attend.

GEORGE L. PLATT, President. MISS ESTELLE BOUTON, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. LEWIS A. SALTER, President.

TULLY SCOTT, Secretary.

#### RAILROAD TIME-TABLE.

#### KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. ..... 12:20 р. м. Going West..... 4:10 P. M.

Passengers with the above-named trains.

GEO. C. WILDER, Agent. Passengers with tickets are carried on any of

FREIGHT ARRIVES.

relegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

F. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reck-oned as an "industrial."

mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Powntz Avenue, Manhattan. 19-3m Poyntz Avenue, Manhattan.

**Dress-Making and Millinery.**—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the highest breeding. Address E, M. Shelton, Manhattan, Kansas

Farming for Profit.—Special courses in Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

ty Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

English Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Anhattan Bank.—E. B. Purcell, Banker; Jno. W. Webb, Cashier. A general banking business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

ough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, without them for the benefit of the astronomer. rather than for the benefit of the astronomer.

Club Rates.—The regular price of the Kansas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to publisher, fifty cents a year. We we will send to any address, for one year, the Furmer, the American Young Folks and the INDUSTRIALIST for \$2.75; or the Furmer and INDUSTRIALIST for \$2.25; or the American Young Folks and the INDUSTRIALIST for

Board of Regents. S. M. WOOD, President, Elmdale.
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JNO. D. WALTERS, Teacher Industrial Drawing. HON. D. J. BREWER, Lecturer on Practical Law. A. TODD, Sup't Mechanical Department.
A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agriculness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and use chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of As a wagon is necessary to haul an education. grain, so are they a necessary part of an educa-tion; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil ac quires working skill in the use of the English quires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and for the course to which fourth years are the spine of the course, to which the others are as ribs and muscle.

# FARMER'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology. 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Practical Geometry. 4. Horticul., Landscape Gardening. 5. Organic, Analytical Chemistry. 6. Practical Surveying.	1. Physiology. 2. Rhetoric. 3. Algebra. 4. Practical Agricul. (elementary). 5. Physics. 6. Industrial Drawing.	<ol> <li>Drill in English</li> <li>Drill in Arithmetic.</li> <li>Industrial Drawing.</li> <li>English Structure.</li> <li>Adv'd Arithmetic, Book-keeping.</li> <li>U.S. History, Industrial Drawing.</li> </ol>

# WOMAN'S EDUCATION.

Nearly one-half of our students are females, Woman's Course is prepared expressly and the for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

# WOMAN'S COURSE.

FOURTH	YE'R	THIRD	YE'R.	SEC'ND	YE'R	
Spring.	Fall.	Spring.	Fall.	Spring	Fall.	Spring. Fall.
0.01,40	1. Farm Economy, Special Hygiene 2. Geology, Mineralogy.	4. Horticul 5. Organic, H 6. Household	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Industrial Drawing.		1. Physiology. 2. Rhetoric. 3. Algebra.	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arith., Book-keeping. 6. U.S. History, Industrial Drawing.

# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

Let the usged that the distinctively agricultural

furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS.

Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them as selected by the pupil or parent: one of them, as selected by the pupil or parent:

FOR FEMALE STUDENTS. FOR MALE STUDENTS. Dress-making. The Farm. The Nursery. Printing.
Telegraphy.
Scroll-sawing. Carpentry.
Cabinet-making.
Turning.
Wagon-making.
Painting.
Blacksmithing. Scroll-sawing.
Carving.
Engraving.
Photography.
Instrumental Music.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments. Each of these departments is conducted exactly

### DEPARTMENTS OF INSTRUCTION.

# DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE.

Second Year:—General principles of breeding; history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the play upon soil and subsoil principles. of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage; how to lay out a system of drains; house drain-

age; sewerage.

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; genera-advantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feedmanures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farm-

FARM ECONOMY. Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

# DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and systematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practical drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of pruning; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

# LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applica-tions of the art as may be made universally avail-able in laying out and improvement of farms and the homes of the people. These lectures are acthe homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

# CHEMICAL DEPARTMENT.

PHYSICS

This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

# INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their com-pounds, are next considered in succession as to their history, properties, manufacture, and espe-cially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY. This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboratory practice.

CHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY.

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity laws of storms; rain, snow and atmospheric elec tricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallog-raphy, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composition of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of fruits, etc.

SPECIAL COURSES

Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE.

Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called language, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared to and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the stu-

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accu-

vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; ters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of compositions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and penman-

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter
the printing class, the printing-office being the

work-shop of language. STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS.—The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the topics included are:

Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech. Stems: Their derivation; their offices and properties; their relation to other parts of words.

derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems. Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reainto an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the sevmutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given operations are performed, but because they can nei-ther add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculations and sees why he needs it. lation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING
Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

ALGEBRA.
Algebra is included in the course as a prepara-

tion for the study of Surveying.
DRAWING.

The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. classes make a far greater use of lines than they do of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Department.

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the prop-erties and uses of angles, and to make the student willful in the application of lines to the field by skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with such special guidance as is found mecessary for a such special guidance as is found mecessary for a full comprehension of the mathematical prin-ciples and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to

FARM ECONOMY considers those affairs of the FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

GARDENING is included in Practical Horticulture. See heading, "Landscape Gardening."

HOUSEHOLD CHEMISTRY. See heading, "House-hold Chemistry."

hold Chemistry."

HOUSEHOLD ECONOMY
Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently management and the control of the c kindred topics. Many elderly gentlemen sum-ciently know, and more young gentlemen will du-ly discover, that systematic knowledge of how cooking ought to be done is luminously diffe-from the ability to do it. Instruction without practice can effect but little. Accordingly a kitch-en laboratory has been completely furnished, and effords every feelility for drill in the art of cooking. affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlast-ingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry — and no more expensive.

# INDUSTRIALIST

Published every Saturday by the PRINTING DEPARTMENT

#### KANSAS STATE AGRICULTURAL COLLEGE.

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Address A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

Normal education:

Normal education:		
Teachers	1.13=	1.13
Professional education:	0.43	
Ministers	0.55	
Lawyers		
Doctors	0.73 =	1.71
Industrial education:		
In agriculture	59.13	
In manufacturing and mechanical	14.63	
In personal service	13.89	
In trade and transportation	9.51=	97.16
		00 00

AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution and even and put in energing by the State was its of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,000 out of which all expenses of instruction are nual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

LOCATION. It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy com-

munication with every quarter. COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English landers of the english landers of the english landers. rigent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following spiences as essentially useful to an ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landacape Gardening, Inorganic Chemistry, Organic Analytical Chemistry, Surveying, Geology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving and music.

# Steam on the Road and Farm.

That steam power is not only practicable but cheaper than horse power in many of the operations of the farm, the experience of the last fifteen years, and especially that of the last five years, has amply demonstrated. That steam power applied as traction on common roads may be made available, has been proved ever since the Fawkes engine ran up and down hill, drew plows, and performed a variety of the necessary work on the farm. Yet, when put to work upon land made adhesive from rain, it failed entirely, and this has been the case with all the machines since brought out. Results in England have been pretty much like our own experience, and they have at last fallen back upon a power that, placed on the side of the field, will draw the plows and cultivating apparatus from side to side of the lands, the engine being moved along from time to time as may be needed.

This system of plowing introduced into the United States has never met with favor, and for the simple reason that the labor of horses is cheaper and more easily managed. We may therefore conclude that steam power for plowing will never be received with favor in the United States so long as horses, mules and cattle may be so cheaply raised and fed. They constitute a part of the capital of the average farmer, who raises them year by year for sale. Thus it may be safely concluded, in the West at least, that plowing by the traction power of steam is not and will not become feasible, at least until, first, the labor of draft animals is worth considerably more than now, and second, the important clause, "until the tendency to slip, in traction, on our ordinary prairie soils, when not perfectly dry," is overcome. The same difficulty will be experienced in traction engines on earth roads. When dry and hard, they may be made to work; when our roads are slippery from rain, or are muddy, such engines must inevitably fail. On hard roads there is no reason why these machines may not work. In fact they will and do work measurably well, as was shown in the late test in Wisconsin, when the "Oshkosh," a machine invented by Schomer & Farran, of Oshkosh, made the trip from Fort Howard to Madison, 201 miles, in 33 hours and 27 minutes; thus coming within the limit of time prescribed, six miles an hour. This machine also hauled loads, plowed, and accomplished various tests. Yet the committee refused to award the premium offered by the State, for the reason as given that the machine is not, according to the spirit of the law, "a cheap and practical substitute for the use of horses and other animals on the highways and farms." Thus was the premium of \$10,000 lost; offered by the Legislature of Wisconsin two years ago "for a successful road motor, propelled by steam or otherwise, to be used as a substitute for draught cattle on on common roads, and for ordinary agricultural work, as in plowing, thrashing," etc.

Inventors have yet three years in which to perfect a machine for this purpose, since the time as specified by the law offering the prize does not expire before that time. To be successful, the machine must haul loads on roads, and plow on lands where horses may successfully work. It should thrash, run various farm machinery, be of light comparative cost, and be so simple as not to require an extra skilled labor to operate it. The "Oshkosh" weighed 4,800 pounds light, and with water and fuel 6,600 pounds. It costs \$1,000, and required a daily expenditure of from \$2 to \$6 per day to run it. It in one instance hauled a load of five tons, only 3,400 pounds more than its own weight. It certainly seems a great improvement over previous machines tried, and yet is a long way from being a practical machine that lows had all the brains.—St. Joe Herald.

will recommend itself to farmers, at the present price of horses, mules or cattle and their feed.

The problem of steam power on roads is not yet settled satisfactorily so far as economy is in question. We do not think it ever will be, where earth roads are concerned. A great necessity in the West is the best possible earth roads. These are and must ever be the dependence in the great prairie region of any country, and from the lack of stone and gravel. Earth roads when wet and slippery are not good things for traction engines; yet these roads are the ones upon which they must be run. When they are good, they are, as a rule, very good. When thoroughly graded and drained, they make good causeways for a great part of the year; yet not such as would be feasible for heavy engines. We think inventors have a better field in the West for the exercise of their ingenuity than in building traction engines for drawing loads on earth roads, or adaptation of steam power to plowing. Horses and horse feed are too cheap. The farmer must keep them at any rate. Our soils are easily plowed, and we have not yet come to plowing - such as may not be done with three horses abreast—is necessary. For ordinary plowing, steam cannot compete with horse power; neither can it in drawing loads on earth roads. When the country becomes fully settled; when the increase of population makes it feasible to have hard well metaled roads; when agriculture shall have become developed as it is in England, steam traction on roads, and steam plowing, may be a necessity. That time is a long way off.—Prairie Farmer.

Young man, before beginning to read law, medicine or theology, ask yourself if it would not be better to read agriculture and practice it. Are not the so-called learned professions crowded to their utmost capacty? Is there not a more inviting field open before you as a learned farmer, than as a learned lawyer, divine or doctor? To attain distinction in any of these professions you will, most likely, have to go through the starving process for several years, and to labor harder than any farmer labors. Think of these things. If you don't think of them now, you will think of them often before you make a living by your profession.—Coleman's Rural.

THE problem of technical education, of which so much has been said of late, has long occupied the attention of thoughtful men in France and Germany. In the former of these countries the question has received much more attention than in the years preceding the war of 1870. In a recent conference at the Trocadoro Palace, M. Carbon, who has labored in the direction for forty years, urged the introduction of manual employments and of the practical teachings of the skilled industries into the higher schools. He spoke of the good results which had been found to follow the establishment of the Municipal School of Apprenticeship in Paris. Although founded only a few years ago, their system of teaching has reached a high degree of development; the mechanical trades being particularly well taught, and the pupils of the school being in great demand by masters. Examples of the work of pupils of this excellent institution are shown at the Paris Exposition.— Nature.

THE most gifted, eloquent and powerful

#### Must Deserve Them.

It is a common complaint in educational journals and at teachers' institutes, that teachers change places too frequently, or rather that schools too often change teachers. The evils of such a state of things are apparent, yet it is a question whether there is not a good reason for the existence, if not for the continuance, of the practice. Were teachers generally more efficient, there would be fewer changes; and it is not certain but that the practice is justifiable on grounds of experimental philosophy.
First-rate teachers will hold their respec-

tive places for a term of years in spite of the tendency to make changes, and if a teacher is invariably invited to "step down and out" at the end of the term, the fact is an indication, though not positive proof, that he is not a professional teacher.

Many of these changes, moreover, are through the fault of teachers who find the work distasteful, or teach only as a means to another end. In such cases school directors are surely not to blame.

If teachers, too, would receive good salaries, they must show that they are worth that point in agriculture when extra deep the money which they demand. A man will pay \$500 for a horse and refuse to purchase another at the price of \$50. Now, while we are aware that horse-appreciation is relatively better developed in the United States than teacher-appreciation, we yet claim that even school dire rors, when not influenced by private motives, can discern a difference in the quality of teaching to the extent of one hundred per cent. and that they are willing to pay for it, when they discover it, at the corresponding figure in

County superintendents or any authorized examiners can do much toward raising the wages of teachers, by raising the standard upon which certificates are granted. School districts that never paid their teacher more than \$35 a month, have been known to raise the wages to \$60 and \$70 a month during the incumbency of a competent and conscientious superintendent or board of examiners. But with all the outside aids that teachers may receive, the central thought of this squib is true, viz.: Teachers, to have good and permanent places, must deserve them.—National Teachers' Monthly.

THE hard times have had one good effect which should have been produced long ago - the removal of a great many people from the towns and cities, always overcrowded, to the broad, unoccupied lands of the far West. The sales of land by the government and the railways in that region have been much larger during the last year than for many years previous. In Dakota alone, the government, last year, sold over 800,000 acres, seven times as much as the previous year. In Kansas, Minnesota, Nebraska, Wyoming, and Colorado, the sales have been remarkably heavy, both by government and the rail-ways. It is estimated that 5,000,000 to 6,000,000 more acres have been disposed of there in the past than in the preceding twelve months, and the demand for land continues active. When the host of unemployed laborers who cling to the cities, despite their enforced idleness, shall have gone to tilling the soil, one of the serious troubles of the day will have been naturally and permanently adjusted. Necessity teaches what argument and illustration never can. Political economists and newspaper scribes might advise the poor and unemployed to statesmen, editors and authors of this coun-try never graduated at a college or high to no purpose. Four or five years of nonschool either. The present generation of occupation and need have set the tide of graduates may have a bigger load of dead humanity flowing in that most wholesome languages to carry around, but the other fel- and very desirable direction.— New York

SATURDAY, AUGUST 24, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY.

THE press of Kansas will confer a favor upon us by publishing the following announcement:

The Fall Term of the Agricultural College will open Wednesday, September 4th, and close Wednesday, December 20th, 1878 Tuition absolutely free.

Five years ago the cry was that we couldn't teach the trades in a College, and now the glowing souls of the bombologists are burning up with the fear that sufficient attention is not paid to that noble insect the fossil butterfly! Get a fan — a palm leaf fan!

THERE never was a greater mistake than the assertion that because the Agricultural College teaches some of the trades it teaches nothing else. Its literary and scientific course is fully equal to that of any institution in the State, more condensed and more effective.

As this College was endowed by Congress and is maintained "for the benefit of agriculture and the mechanic arts," and as printing is one of the most useful and common of the mechanic arts, the right of such a College to teach printing ought to be tolerably clear to most persons.

#### The College Presidency.

Nominations to the presidency of the Agricultural College are in order, and below will be found the first which has come to hand. During the canvass we shall personally provide for the performance the State to teach trades is concerned. of the duties ordinarily devolving upon us, and think it probable that no selection will be made by the Board before next year. However, that is only our individual notion in the case:

Mr. Anderson's nomination being equivalent to an election, it may not be out of place to discuss the appointment of his successor as President of the State Agricultural College. A man of ripe experience, good judgment and sound common sense should be selected. We do not want a man who is not thoroughly in sympathy with the progressive, advanced course which has hitherto been pursued in the management of this Institution.

There is no man in Kansas better qualified for the position than Judge H. M. Aller, of this city. He is an accomplished educator and a practical farmer of twenty years' experience, well educated and a gentleman who would enter upon the work bench, than there is in teaching algebra or with his usual energy and vim. We do not know that Judge Aller would accept the position, but believe that it should be tendered to him, as he would be a credit to the State as President of the Agricultural College.—Leavenworth Times.

# Not Any!

From several quarters have come suggestions to the effect that the recent nomination of the President of this Institution to a political office would ultimately result in the virtual closing of the College by its consolidation with some other State institution. In reply to which we beg leave to say that the man never lived and never will live whose place couldn't be filled; that the success of this College does not depend upon any one man, but upon the wishes of the industrial classes of Kansas for a practical and profitable education, and upon the ability of the Regents to meet these wishes; that the line of policy marked out and the methods employed are inherently adapted to furnish such an education, and, therefore, will be followed and developed not because any given man inaugurated them, but, cate its youths as producers, or at the very insertion thereof in its columns.

because they are bound to secure the desired result; that the idea of a "practical" as distinct from a "professional" education is so widely and thoroughly rooted in the State, that the College, so far from ever being virtually closed by consolidation, will ultimately become the strongest educational institution of Kansas; that, should such a consolidation be temporarily effected, it would cause, within five years thereafter, the abolition by the farmers of the State of the institution effecting said consolidation; and finally that the methods of a practical education for the working classes are far more likely to swallow up those of "mental discipline" or "culture' than to be swallowed by them. One thing is certain, that up to the last minute of our connection with this Institution we shall work and fight for it as if that connection were never to be severed; and, with respect to the principles on which the policy of the College rests, we believe in them thoroughly and for all time to come.

# The Right of the State to Teach Trades

The Oskaloosa Sickle asks:

What right has the State of Kansas to teach a lot of boys the printing business? Why not set up a medical college, a shoemaker's shop, a jewelry establishment, a tin shop, and teach all the professions and trades? They have no more right to graduate a boy to type-setting at the expense of the State than they have to graduate young men at any other profession or trade.

We have elsewhere shown that the income of the Agricultural College is derived from the Congressional grant, and that the State does not contribute a cent to our current expenses. This fact would at once rule out the work of the College, so far as the question of "right" upon the part of

But waiving this point we wish to suggest to the Sickle, and to all who are disposed to think that the system of public education must be shaped exclusively for the benefit of those who will enter a "profession," and not at all for the benefit of those who must toil with their hands, that, if the State has a right to levy taxes for teaching anatomy, it certainly must have the right to teach shoemaking, because many more of its citizens obtain a living as shoe-makers than as physicians. If it is right to teach Latin and Greek in the public schools for the benefit of future lawyers and ministers, it is equally right to teach English for the benefit of the farmer and printer. There is a deal more equity in teaching mechanical drawing and in making its applications at the tinner's astronomy, of which, relatively, no practical application is ever made.

As to the question whether the State has a right to levy taxes for the education of its future citizens, we fancy that most persons agree in the opinion that, under a republican form of government, the State has a right to protect the citizen from ignorance and itself from the dangers of ignorance, and, therefore, has the right to so educate the boy that he shall be best qualified for performing those duties which devolve upon every citizen. Just where the limit is to be placed between this right of the State and the right of the individuals who, while constituting the State, have other relations than as citizens, and other privileges than those which spring from citizenship, is a matter that has not been decided, and about which there is the largest difference of opinion. Those who hold that, in addition to educating the citizen as a voter, the State has the right to protect itself against paupers and criminals, and, therefore, the right to edu-

least as self-supporters, must logically hold that it has the right to give such an education as will ensure the most successful farmers, mechanics and laborers, as well as the best professional practitioners. And if this view be taken, then certainly are there far broader and more philanthropic grounds on which to rest the right of the State to give a practical education for the industrial classes, than there are for the education by the State of the professional classes. But, as we said before, the College is in no way affected by the decision of these questions, because it is not supported by the State, is only the ward of the State as the trustee of Congress.

Yet, isn't it about time that the friends of the working classes of Kansas - of whom we believe the editor of the Sickle to be one should open their eyes to the fact that during the past five years the Agricultural College has been sturdily fighting for, and has provided, a practical education directly shaped for the immediate benefit of the ninety-seven industrialists, as distinct from the usual course which was and is designed for the exclusive benefit of the three professionalists? Whether the methods we have adopted are the best for ensuring such knowledge and skill as will enable the working men and women of Kansas more successfully to earn an honorable living, is an open question in the minds of some persons, though it is not so in our judgment. But be that as it may, the true friends of the farmer, mechanic and self-supporting woman should be the last to fight a College which is squarely conducted in the direct interest of the working classes of Kansas, and should be the first to aid it in correcting errors and in reaching such a point as will place it above any attacks of professional educators, or any danger of swerving from its true course.

#### Who Pays For It?

Under the above title the Oskaloosa Sickle and Sheaf devotes a column to the Printing Department of the Agricultural College, and, after speaking kindly of the Industri-ALIST - for which the Sickle will please accept the Industrialist's thanks - makes an extract from the Superintendent's last report and comments as follows:

Now this sounds very nice, tnirty-five boys learning to set type on a paper twelve inches one way by sixteen and a half inches another. The question naturally arises, Who pays for it? These boys pay their board at the rate of about \$2.75 per week per "devil," and the dear State of Kansas teaches them the trade.

What right has the State of Kansas to purchase a fine printing-office, and hire a foreman at a salary of \$540, or thereabout, a year, and learn a lot of boys the printing

Who pays for it?

The Sickle may not be aware of the fact that several years ago Congress made a grant to the State of Kansas, as trustee, consisting of over 80,000 acres of selected lands, for the endowment and maintenance of an industrial college. Much of this land has been sold and the proceeds invested in interest-bearing securities — chiefly school bonds. The income derived from this investment is about \$20,000 a year, and out of that fund the expenses of the Printing Department, as of all other departments, are paid. The State has nothing more to do with the wages and current bills of our office than it has with those of the Sickle. Not having access, at this writing, to the records, we cannot say what sums have been appropriated by the State to the equipment of the Printing Department, but they were small; and for some time past the State has done nothing in this direction, nor will it be asked to do anything more. We trust that this explanation will be satisfactory to the Sickle, and would be obliged for an

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Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist west, VIZ: 1707. G. C. Bloadined, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with referen-to their reliability and their adaptiveness to the

pular taste. Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other REVIEW and and to its attraction and in every other ness by suitable illustrations, and in every other

SATURDAY, AUGUST 24, 1878.

Prof. Failyer is boarding with Prof. Ward.

Noble Richardson was here last week, completing arrangements for resuming his studies another

Plowing is now the order of the day on the College farm. The ground is being prepared for fall

Prof. Buchly, of Newbury, Wabaunsee county, has made arrangements for one of his sons to attend College.

President Anderson and family will return to Manhattan on Monday. Illness in the family prevented them from coming this week.

Prof. Platt lectured before the Pottawatomie County Normal Institute Friday night, and will remain in Louisville over the Sabbath.

John Winne has obtained a position as salesman in a dry goods and grocery establishment at Salina. He will start for that place on Monday.

New students on arriving should report to A. A. Stewart, who will give them such information as is needed in regard to boarding places and other necessarv arrangements.

There was a railroad smash-up at the Manhattan depot last Wednesday night. Several cars loaded with grain and two locomotives were badly damaged, but no persons were injured.

On account of the excessive heat, the masons on the new building have been unable to put in more than five hours per day during this week, consequently the work has progressed slowly.

Prof. Shelton has returned from his trip through Iowa, Illinois and Michigan. He speaks in the highest terms of the Michigan Agricultural College, which institution he thoroughly examined.

Any boy or girl who wishes a thorough, practical and sensible education for business life, can get it at less cost and in a shorter time at the Agricultural College than anywhere else. Send for cata-

The Cincinnati Grange Bulletin notices the publication of Mr. Godfrey's graduating oration in the Industrialist, and says "it is a concise statement of facts, and is being published throughout Kansas."

Mr. Davis, our janitor, and several of the new students are cleaning and airing the various buildings. If any one thing seems more natural than another around these premises, it is to see Mr. Davis again in his place. A more faithful or trustworthy man never lived.

One week from next Wednesday our Fall Term opens. The quietness and deserted appearance of the buildings, which has characterized this and all past vacations, has already been disturbed by the Professors, janitor, and new students, who are respectively preparing for the coming term.

Our County Normal Institute closes next week. About eighty teachers have been enrolled, and in every respect the Institute has been both profitable and successful. We understand that President Anderson has been asked to deliver his lecture on Kansas before the Institute some evening next

Are there no rooms in Manhattan which students may rent? A great manyof those who are coming wish to board themselves, they are not able to do otherwise, and all persons having rooms or houses to rent will please notify us. This is a poor man's College - a school for the masses, the poor boys and girls of Kansas, and we desire to assist them in reducing their expenses as much as possible.

A. A. Stewart has gone and done it again; that is, he began house-keeping this week. Hereafter, if the Industrialist should be late, you may charge it to wood chopping, or other duties, trials and tribulations of that nature. He occupies Miss Moses' house, the first place west of George W. Higinbotham's residence. "A. A." says he has just begun to live, and that nothing can compare with married life and house-keeping.

Fredrick W. Bardwell, Professor of Mathematics and Engineering in the State University, died at his home in Lawrence, on Saturday, the 17th inst., at the age of forty-six years. A few weeks ago the Professor went to Colorado, and while there was taken ill. He came home and gradu-Wally grew worse until he died. Professor Bardwell was a self-made man, a clear thinker, and in him the University loses a power which cannot easily be replaced.

The following new students have reported to A. A. Stewart during the week: D. S. Leach and J. C. Allen, Mitchell county; Wm. P. Luse, Marshall, be allowed to take more than the prescribed num-Saline Co., Mo.; Wm. A. Pfoutz and sister, Atchi- ber of recitations; and no one will be permitted son, President, Manhattan, Kansas.

son county; Mr. Stiles (not A. H.) with three comrades, Wabaunsee county; and George Humphreys, Sumner county. Besides these, two families are reported, one having seven persons who will attend. If students continue to come in this manner, we shall have a large attendance.

#### ENTERPRISE ITEMS.

Geo. Wake came down from the west on Sunday morning.

There are seventy-six scholars enrolled at the Normal Institute.

Rev. Goodwin is to teach the high school at Ellsworth next term. He was up last week secur-

The colored boys have organized a brass band. They start out with nine members, and will undoubtedly make a good band. Manhattan has the best fair grounds in Central

Kansas, and the managers are making great exertions to make the Exposition a success The St. George band has the job of playing for the Manhattan fair. They took the premium among a number of bands at Topeka, during the

There will be an examination for State certificates at the new school-house August 24th, 25th and 26th. An examination for county certificates will be held on the 30th and 31st.

The Leavenworth Times names Judge Aller, of that city, as a good man to succeed President Anderson in the Agricultural College. Now, look here, do you suppose that Riley county would have been fool enough to nominate Anderson for Congress if we hadn't a man lying back in the shade "fitted by nature and education" to take his place. Not any. Besides, Anderson does not take his seat in Congress until December, 1879, and it is contrary to Kansas usages to expect a man to relinquish one position until he has a better one within his grasp.

#### NATIONALIST ITEMS.

Mr. Beverly has a street lamp in front of his store. Other merchants should follow his exam-

Miss Fannie Denison having spent the summer with her friends about College Hill, returned home Monday.

All intending to attend the next term of the Agricultural College should prepare to enter the first day when possible.

Last year the population of Manhattan increased sixteen per cent, and it ought to increase still more this year. Now is the time to build.

The Institute is one of the things for our county to be proud of. The list of teachers is large, and they are enjoying it and improving every minute.

President and Mrs. Anderson will return from their visit to the country to-day or to-morrow. They would like to rusticate a little longer, but cannot spare the time.

Quite a number are planning to attend the great temperance convention at Lawrence. The fare is so low all can go, - only one cent per mile, - making a pleasant and cheap excursion.

The trustees of the First Methodist Episcopal Church have decided to repair the church building, at the cost of about three hundred dollars, as they are not able to build a new church for a year

The Kansas Pacific Railroad has sold 127,272 acres of land this year, against 31,624 disposed of last year, and the year is only half out. It is more than probable that they will dispose of 200,000 acres this year.

We are glad to hear that our leading citizens have become convinced that a suitable public hall should be built in this city at once. It should be about twice as large as Peak's Hall and be located on Poyntz avenue. With the rapid growth of the town and country, and the improved financial condition, such a hall would pay, and we hope that the matter will not end in talk. Who will work

On Wednesday night a freight train from the west ran into another that was standing on the main track near the stock yards, and the gines and several cars were badly smashed. Two cars containing wheat were thrown across each other, and their contents scattered on the ground. Fortunately, the train men jumped off before the collision and were not injured.

## DIRECTIONS TO APPLICANTS.

# TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as possible.

## GRADES.

Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in

the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take pure then the prescribed num.

to have less than one industrial and three literary

#### RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. m. on academic days, and divine service once every Sabbath.

#### EXPENSES.

There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

#### LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.—Manual labor in the reci-ations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. - When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

## AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he an do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make onehalf their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses. half his expenses on the Farm or in the Nursery During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

## RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

## PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Department, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Education. Price, 75 cents a year. Address A. A. Stewart, Manhattan.

# CALENDAR.

Full Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

## TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

#### LITERARY SOCIETIES.

ALPHA BETA .- Chartered, December 26th, 1870. Meets in College building every Friday at 2 P. M. Ladies admitted. New students cordially invited to attend. George L. Platt, President. MISS ESTELLE BOUTON, Secretary.

Webster.— Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. Lewis A. Salter, President.

TULLY SCOTT, Secretary.

#### RAILROAD TIME-TABLE.

#### KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going West...... 4:10 P. M.

FREIGHT ARRIVES. Going East...... 2:55 P. M., and 10:30 P. M. Going West...... 6:20 A. M., and 9:00 A. M.

Passengers with tickets are carried on any of Passengers with the trains.

the above-named trains.

GEO. C. WILDER, Agent.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

H. S. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reck-oned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Povntz Avenue. Manhattan. 19-3m

Dress-Making and Millinery.—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the high-est breeding. Address E, M. Shelton, Manhattan,

Farming for Profit.—Special courses in Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valchemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

reglish Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Jno. W. Webb, Cashier. A general banker; ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission. without any charge of commission.

athematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Club Rates .- The regular price of the Kansas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the INDUSTRIALIST for \$2.75; or the Farmer and INDUSTRIALIST for \$2.25; or the American Young Folks and the Industrialist for

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J. E. PLATT, Prof. Elem'y English, Mathematics.
JNO. D. WALTERS, Teacher Industrial Drawing.
HON D. I. BREWEER, Lecturer on Practical Lawn. HON. D. J. BREWER, Lecturer on Practical Law. A. TODD, Sup't Mechanical Department.
A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its which the control of the state require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION. Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil ac-quires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

## FARMER'S COURSE.

3. Industria 4. English S 5. Adv'd Ari 6. U.S. Hist 1. Physiolog 2. Rhetoric. 3. Algebra. 4. Practical 5. Physics. 6. Industria 1. Botany, I 2. Inorganio 3. Practical 4. Horticul. 5. Organic. 6. Practical 1. Practical 1. Practical 2. Geology, 3. Polit. Ec. 4. Zoology. 5. Agricul. 6. Logic.	FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
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Book-keeping. Book-keeping. Strial Drawing. (elementary). (g. gy. iry. pe Gardening. al Chemistry. ng. ure (advanced.) gy. ractical Law. y, Meteorology	1. Practi 2. Geolog 3. Polit. 4. Zoolog 5. Agricu 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Practical Geometry. 4. Horticul., Landscape 5. Organic, Analytical Companies, Anal	न्या स्थान	1. Drill in 2. Drill in 3. Industri 4. English 5. Adv'd A 6. U.S. His

WOMAN'S EDUCATION. Nearly one-half of our students are females,

and the oman's Course for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

## WOMAN'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.	
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.	
196400	1. Botany, E. 2. Inorganic 3. Industrial 4. Horticul., 5. Organic, H 6. Household	1. Physiology. 2. Rhetoric. 3. Algebra. 4. English Litt. 5. Physics. 6. Industrial I	1. Drill in El 2. Drill in A. 3. Industrial 4. English S 5. Adv'd Ari 6. U.S. Histo	tat
Farm Economy, Special Hygiene Geology, Mineralogy. Polit'l Economy, Practical Law Zoology. Phys'c'l Geography, Meteorology Logic.	Entomology. Ic Chemistry. al Drawing. I. Landscape Household C	Physiology. Rhetoric. Algebra. Algebra. English Literature. Physics. Industrial Drawing.	nglish. rithmetic. Drawing. tructure. ith., Book-kee	1 1 2 6 6 6
giene l Law rology	Gardening		ping. Drawing	1

# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic we reply that

directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions: 2. That the great preparatory to the professions; 2. That the great from them. majority of Kansas mechanics will also be more tory practice.

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS.

Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

FOR FEMALE STUDENTS. Dress-making. Printing.
Telegraphy.
Scroll-sawing. Carving.
Engraving.
Photography.
Instrumental Music.

Blacksmithing. Instrumental Music.
Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

#### DEPARTMENTS OF INSTRUCTION.

DEPARTMENT OF AGRICULTURE. PRACTICAL AGRICULTURE.

Second Year:—General principles of breeding; history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots: soils that need drainage: tion of corn and roots; soils that need drainage how to lay out a system of drains; house drain-

how to lay out a system of drains; house drainage; sewerage.

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; generadvantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; maand production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farm-

FARM ECONOMY. Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

DEPARTMENT OF BOTANY AN PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and systematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practi-cal drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of pruning; the orchard; fruit suitable for orchard and and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

CHEMICAL DEPARTMENT.

PHYSICS

This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to their history, properties, manufacture, and especially with regard to their uses on the form and cially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboraCHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of management accompanions the principles of the production and their adaptation and use of management accompanions the principles of the production. nures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY. Embracing the composition of the atmosphere; atmospheric pressure; temperature and humidity; laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallography, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composi-tion of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of fruits, etc.

SPECIAL COURSES Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE. Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called language just as an engineer handles a locomotive: guage, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the stu-

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of compositions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and penman-

ship.

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter
the printing class, the printing-office being the work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS .- The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the

topics included are:

Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech.

Stems: Their derivation; their offices and properties: their relation to other parts of words.

erties: their relation to other par Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance

derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems. Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires language. By this means, the student acquires not only a knowledge of English, but readings and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT. Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given opera-tions are performed, but because they can nei-ther add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and The chief design of this study is to make the stuloss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult ARITHMETIC AND BOOK-KEEPING

ARITHMETIC AND BOOK-KEEPING
Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important art.

ALGEBRA.
Algebra is included in the course as a preparation for the study of Surveying.

DRAWING.
The practical value of Industrial Drawing can The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing during the terms indicated by graphical Drawing, during the terms indicated by the Course of Study. In addition, constant prac-tice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Depart-

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block. grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renthe mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical prinfull comprehension of the mathematical principles and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy omy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

GARDENING is included in Practical Horticulture. See heading, "Landscape Gardening."

HOUSEHOLD CHEMISTRY. See heading, "House-held Chemistry."

hold Chemistry."

HOUSEHOLD ECONOMY
Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlastingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry—and no more expensive.

No. 20.

# THE INDUSTRIALIST

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#### KANSAS STATE AGRICULTURAL COLLEGE.

TERMS OF SUBSCRIPTION, 75 cents per year, postage prepaid. Ten cents per month, postage pre-paid. Payment absolutely in advance! Paper stopped at expiration of subscription. Address A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations as shown by the last United States consus tions, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as Normal education:

Ministers..... Lawvers..... Industrial education: 

AGRICULTURAL COLLEGE.

Recognizing the need for an education which Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education. ENDOWMENT.

The endowment received from the United States The endowment received from the United States Government consisted of \$1,601 acres of choice land, all of which had been sold at date of last report, except \$1,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,000 out of which all expenses of instruction are nual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

LOCATION.

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Meneralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, talegraphy, carving, appropriate making, printing, telegraphy, carving, engraving

Waste of Labor in the Work of Education.

[An Address by P. A. Chadbourne, LL. D., President of Williams College, Williamstown, Massachusetts.]

It is supposed that education will prevent a waste of labor; that the educated workman in any productive employment will put his blows in the right place and strike them at the right time, so that his labor shall be more efficient for the good of himself and the world than the ill-directed efforts of the ignorant man. To make labor efficient, schools are established for the education of workmen in every industrial pursuit.

It is plain, however, that the world, as a whole, is still far enough from making all labor as effective and productive for good as it ought to be. Through ignorance, care-lessness, pride and dishonesty, a large por-tion of the labor performed is wasted, in that it fails to produce the desired result, or at least adds nothing to the rational enjoy-ment or progress of the race. We have but to observe for a single day to find too abun-dant illustrations of this subject. A hundred ignorant laborers, working under their own direction, or rather without direction, in any of the great industrial pursuits of the age, would starve if depending upon the products of their own labor, while that same company, directed by an organizing brain, would support themselves in comfort and leave a handsome surplus for their employer. Through the carelessness of servants, property is daily destroyed; through the carelessness of owners and guardians of property, ships are sunk, cities burned; and there is a constant, needless waste of property through rust or decay. All such loss is waste of labor. Pride wastes labor for show, and dishonesty wastes labor on poor material, or by so cheating in quality of work as to make good material of no account. So we might enumerate a list appalling in magnitude, until we should feel like joining the crusade to reduce the hours of labor, that men might learn not to waste it, if for no other purpose. If ten hours of labor are now sufficient to enable the ablebodied men and women to support the world, if we could stop the waste through ignorance, carelessness, pride and dishonesty, eight hours would be better. After allowing for all needless misdirection and waste, we do not believe that we now get more than six efficient hours out of the ten during which men really do toil. It is safe to say that more than one-third of the time and strength of all who labor is spent in

Does this waste appear in our own work, the work of education, the object of which is to save all waste? In all honesty, we must say yes. Perhaps I might add, there is waste here from the same causes I have already mentioned: ignorance, carelessness, pride and dishonesty. I might also add that there is waste oftentimes from the necessity of the case. It often happens, in ordinary work, that we have to labor at a disadvantage. The same is true in educa-

A portion of this waste from all these causes is due to failure on the part of the teacher, partly it is due to the student, and partly to the parent and guardian. We can only point out the conditions of the waste, and the share belonging to each delinquent will readily appear.

IMPERFECT TEACHING.

I do not so much refer to the defective knowledge imparted in the school-room, although this is often painfully apparent to those who attend examinations, especially in the progressive natural sciences - I do not so much refer to this as to the wretched habits of study formed in some schools. method of loading down a subject with There are schools without system, without what is unimportant, do not understand me

any standard of accurate scholarship, and without any enthusiasm; for a genuine enthusiasm for study is impossible under any false system of instruction.

The student labors, but it is as a man might labor piling stones together to form a wall without any reference to the nature of the work in hand, stones of all sorts going alike into foundation and top. Not only is much of the labor in such a school lost, but the habits there formed cling to the student; and it is only in rare cases that they are ever entirely corrected. Those who receive students from such preparatory schools sympathize with the old Greek musician, who charged double price to all students who had ever taken lessons before coming to him one-half for correcting bad habits.

Much loss comes from the bungling recitations of those who might be trained to accuracy. It is too often the case that the student is allowed to stumble through the recitation, showing only here and there any proper understanding of the subject, so that he gains nothing in clearness of thought, accuracy of information, or precision in language. A little more careful labor on the part of the student, a little more pressure in the right direction on the part of the instructor, would render the work of both of double worth.

UNIMPORTANT MATTERS.

In connection with some studies are found many things that either have no essential connection with them at all, a mere temporary connection, or one that is worthy the attention of the professionals alone. It makes one shudder to think of the trash which scholars have been comple studies of grammar, geography and arithmetic, to say nothing of the waste of labor in connection with classical studies and the higher mathematics. Many grammars insist upon distinctions and definitions which confuse rather than enlighten the beginner. Perhaps no teachers are left who compel their students to commit long lists of prepositions and adverbs, so that they may know them to be such in parsing; but other things as absurd are required, not in common schools alone, but in colleges. Poor text-books come in here for their

them, that cannot be eliminated without some of them did; and for a must have, if we use text-books at all. If one doubts the propriety of this cutting down text-books, let him take his best scholar after completing an ordinary book and ask him to write out all he knows on both excellent - indispensable in their the subject. The book he makes will be small; and, in general, the larger the text-book he used, the smaller the book which represents his own knowledge of the subject. If this Institute of Instruction would appoint a committee of five to select the best text-books on all the subjects taught in our schools, have this committee solemnly bound not to add a single line, but let each one be encouraged to strike out every rule, list and problem that he thinks could be spared, my belief is that every author so treated would find his text-book vastly improved. He would probably think at first that the book was ruined, as students are apt to think their essays are ruined when the professor draws his pen through what they consider their finest sentences.

A PROLIFIC SOURCE OF WASTE.

In my opposition to the too common

to recommend that we should teach but a little of the subject. I wish to throw aside all useless weights, that we may run the better; all non-essentials, that we may make thorough work with the essentials. One of the most prolific sources of waste in the work of education is that we content ourselves with a mere smattering of things that are of no use at all, unless they are learned thoroughly. Those things which we have neither time nor talents to learn thoroughly should, as a general rule, be left untouched. There are exceptions to this rule, I am aware. How much time is wasted on French by those who never learn to speak or even read the language; on musical instruments by those who never can, or certainly never do, get beyond the point where all their performances are hard labor to themselves and torture to listeners. In languages and higher mathematics there are many things that some minds simply grasp for a moment, if at all, and they are gone, and so completely gone that they are of no use, directly or indirectly. Some claim here that, although the thing is forgotten at once, we have the benefit of the mental exercise in acquiring it, and this is worth all the labor. There is certainly good in mental exercise. The question is, Can it not it be obtained on more advantageous terms than by learning a little of difficult studies to be forgotten?

And this brings me to the next statement, that there is waste of labor in making the studies too hard. There is somehow a notion, ingrained in many of us, that it is good for us and for the little ones to be afflicted; and so it is. But it is not good pelled to learn in connection with the sim- for us to afflict ourselves, or the children committed to us, except as a rare case of discipline. The whole structure of the world brings all the affliction we need if we rightly improve it; and the road of learning, which old authority declared to be no royal road, is hard enough to tax all the powers of every student to their full extent, even when his teacher is at hand to direct in every place of doubt and to lend his aid where the way is hard and the feet are weary. It was an old notion that children must be toughened by exposure to cold and wet, and be made healthy and energetic by share of blame. Small text-books, contain- calling them out of bed for hard labor when ing only the essentials of the subjects they ought to have been asleep. Children treated of, only those parts that have life in lived through such hardships, it is true—them, that cannot be eliminated without some of them did; and for a time those who leaving the subject imperfect, are rare. It had strength to live seemed to improve in takes a brave man, and one merciless health under the hard usage. But short toward himself, to make a small, simple, lives, rheumatism, and broken constitutions but thorough text-book. Such books we in middle life were the general products of such a hardening process.

A like notion has too often prevailed in regard to intellectual training. The charm of 'thoroughness' and 'independent work,' places - induces many ambitious teachers to make drudges of their students, till all ambition and enthusiasm are utterly gone from them. By giving such students work only apportioned to their strength, keeping them for a time from all contact with the knotty points, or lending them a helping hand by showing the method of untying such knots, they might have gone on with courage till they could grapple successfully and joyfully with the hardest problems of any science. Many a teacher has seen such discouraged, disheartened boys, who utterly loathed all study, simply because it had always been demanded of them in a kind beyond the mastery of their unaided strength. And some of us have seen learned and faithful teachers who tormented themselves and disheartened their students, because these teachers could not understand the difference between thoroughness and indiscriminate cramming with non-essentials.

[Concluded next week.]

SATURDAY, AUGUST 31, 1878.

JNO. A. ANDERSON, Managing Editor. ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

THE press of Kansas will confer a favor upon us by publishing the following announcement:

The Fall Term of the Agricultural College will open Wednesday, September 4th and close Wednesday, December 20th, 1878. Tuition absolutely free.

INDUSTRIAL drawing and vocal music are obligatory branches of instruction in the public schools of Switzerland. About five hours are given to drawing and two to singing each week. The results are very satis-

THE Kansas State Bee-Keepers' Association will meet at Lawrence on the 4th of September, at one o'clock P. M. The meeting is expected to be a very large one, as it will give to those desiring to attend the advantage of the reduced rates on railroads, secured by the officers of the temperance camp-meeting to be held there the same week. A fine display of honey and bee fix tures will be on exhibition.

#### Her Fitness for Industrial Labor.

What industries may properly be fol lowed by women, and be fairly included in the list of those taught the girl? The answer will be governed by two considerations; first, the adaptedness of woman, a compared with man, to the labor required and, second, the price paid for the given

labor. We assume that the characteristics of woman are two-fold, mental and physical and that, in the performance of industrial labor, the action of the body and that of the mind not only modify each other, but do so in varying degrees in different kinds of work. Admitting that a woman's touch is not more delicate than is man's, yet, if her perceptive faculty be stronger, she must be better adapted to those operations in which the hand acts under the constant guidance of the eye. Drawing is a case in point where, though her touch were finer, still his is fine enough for all practical purposes. But, since the perfection of a picture lies in its accurate imitation of the original, if her observation of details be more exact, her work will be the better of the two, and her greater adaptedness thereto will depend upon her mental and not her physical characteristics. On the other hand, suppose her mental fitness for the work of the carpenter to be equal to man's, and that her bodily strength can be so increased by training as to enable her to work at the bench, still it is clear that he, because of his greater natural strength, can exert the requisite force with less effort, and therefore work longer and cheaper than she. But it is also clear that his advantage, in this respect, would decrease exactly in the degree that the work required less force. In the handling of weighty timbers or the use of heavy tools, he would be superior; but in carving and wood engraving, she would be his physical equal, having strength sufficient for the use of the light instruments employed; and, at this point, her assumed "intuitiveness" would give her the advantage, supposing her nerves to be as steady as his. So that, in determining the relative fitness of women and men for industrial labor, we must consider their relative power, both of body and mind, the relative inter-modifications of these, and the requirements of the proposed Give the Boys a Chance.

In the State of Kansas, there are hundreds of young men, far in their teens, who have but little education. At the time their parents decided to remove to Kansas, these boys ranked among the best scholars of their age in the schools East. They were then from twelve to sixteen years of age. Bright, active and helpful, their services were at once called into requisition in opening up farms and establishing new homes. For the last five or six years they have been hard at work, and have done their share in making Kansas one of the first | ing? or, in other words, what is an educated agricultural States. They have learned many lessons in the school of experience; their minds are mature; and physically many of them have a splendid development; but in the education which the schools give they are sadly deficient. They are dull in arithmetic, they are ashamed of their penmanship, they find it difficult to compose a letter, and are wholly ignorant ble of using any other powers which he may of the science of accounts. Their course of reading has been limited. They have often taken an inventory of their educational attainments, and are deeply conscious that they are ill prepared to enter the arena of business life and engage in the sharp competition that characterizes this age. Their fathers, too, begin to realize that their sons have not had the advantages which they themselves enjoyed, and often experience that inward pang which always comes when a parent has failed in duty to his child.

Now, what shall these young men do? Accept the situation and for the remainder of their lives regret that they lack an education which might enable them to be more successful in life? What shall their fathers do? Accept it as a foregone conclusion that their sons must always stand in the rear ranks, because their school years have been mostly spent in making the comfortable homes which they will soon leave and which the rest of the family will enjoy? To all of these questions we answer, Nay Much can be done to retrieve the past deficiencies. It is surprising how much can be accomplished in one year in school, under favorable surroundings, by a young man of this class.

The Agricultural College of Kansas is a school for the industrial classes. The course of study for the first year, and the methods of instruction pursued, are especially adapted for the class referred to in this article. We trust that every young man of this class who may read this article will resolve that he will have a year or two of schooling; that every parent will decide that he will now give his older boys a chance. This matter cannot be deferred. The school-time of this class is very brief,—at the longest but two or three years. In many cases, the decision made now - this fall - will be final one way or the other.

Some of this class, near their majority, will be tempted to engage in business at once, because of the bountiful harvests of the past two years. Better that the young man defer starting in life until he shall have accumulated sufficient capital, educationally, to enable him to enter the first ranks. Some farmers will feel that their sons must stay at home until the harvest is completely gathered. Better hire a man and let your son enter school at the beginning of the year. Better defer some projected improvement on farm or buildings than rob your son of his birthright in this country—a good business education. The value of a hundred or a hundred and fifty bushels of wheat, or of two or three fat cattle, or of a horse, will cover the expenses of your son in the Agricultural College for a year. Give the older boys a chance.—Prof. The Teacher's Model.

A little boy whittling a piece of pine board was asked what he was making. He replied that he did not know whether he would make a sword or rocking-chair; he would whittle a while and see which it was the most like. Is it not true that many of the instructors in our schools whittle away without having any definite idea in the mind of what is to be produced, or consider whether their mode of procedure is calculated to attain any particular result? Now, what should every teacher aid in producman? I answer:

1. It is a man who has a strong and healthy physical body; whose digestive, breathing and circulating organs all perform their duties faithfully; and who is not full of pains and aches, and a thousand and one diseases which beset the human race. If he has not this, he is in a great degree incapa-

2. It is a man who has the ability to do something, either with his hands or his head, which will add to the wealth of the State, and by which he can secure a support for himself and a family. If he cannot do this, or if he can do only one thing, and that business is overstocked with laborers, he is a hanger-on, a drone or a tramp in society, and must be supported by others or

3. It is a man who has a knowledge of science and history; who is able to express his thoughts with accuracy and facility by the use of his mother tongue; who understands the principles and practice of mathematical computations, so as to ascertain any fact or make any calculation that may be required in business; who is able to see and comprehend in a measure the operation of those natural forces which are constantly busy around, beneath, above him; who is able to judge something of the effect of certain causes in the future, because he is acquainted with those effects in the past.

4. It is a man who has a well-disciplined mind, a mind capable of thinking closely and steadily upon a subject that may be presented to him, of following and weighing an argument, of detecting a fallacy in a course of reasoning, and capable of forming an intelligent judgment or opinion upon all the great or small questions of the day, on which he may be called to act or decide.

5. It is a man who has a substantial moral character; a truthful man, an honest man, a man who cannot be turned from a course of right, a benevolent man; in short, who regards the success and interests of his fellow-man equal to his own. If a man possesses the opposite of these qualities, all the other learning he may possess only gives him power to become a more destructive member of society. Our nation is in need of honest public men. For the want of them we are drifting towards destruction. Other nations as strong as ours have fallen for the want of such men, and it is not impossible that we may travel in the same

6. He only is a truly educated man who has learned to know and endeavors to perform those duties which he owes to his Creator, as well as to his fellow-man.

Fellow-teachers, with a correct model in our minds, let us whittle as carefully and as nearly to the true line as we may. The human mind and body and soul is too valuable an article to be spoiled by careless, indifferent work. Let us prepare ourselves for the work, learn the use of the tools to be used, and engage in it intelligently and earnestly, remembering that faithful labor will meet with a suitable reward .- Prof.

Educational Calendar.—A wide-awake, spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W. Martin, Topeka.

Habits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds.

Special attention paid to the habits and both Special attention paid to the habits and best methods of preventing or destroying insects in imical to the Kansas Farmer.

Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching disinfectants, vertiletion, etc. Special bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

A gricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. P. Filiott Agent Manhattan, Kas. address L. R. Elliott, Agent, Manhattan, Kas.

A Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of the title of "PRENTIS IN EUROPE;" "PIKE OF PIKE'S PEAK," the interesting address originally PIKE'S PEAK," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "THE WORLD A SCHOOL," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher. Topeka, Kansas.

Drinting !- Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer that taste necessarily exercised by every good b Printer. The Printing Department is well fur-Job Printer. nished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printng, the weekly publication of the Industrialist ent furnishes advanced students by the Department furnishes advance the requisite drill in newspaper work.

Kansas Text-Book, for teachers and students. ELEMENTS OF AGRICULTURAL GE-oLOGY, for the Schools of Kansas, by Prof. Wm. K. Kedzie, M. S., of the Kansas State Agricultural

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact."

In two parts: Part First—Elementary Geology Part Second—Origin and Formation of Soils. Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a Centennial award for quality of work. work, by Kansas mechanics, at this Kansas establishment. Pronounced "faultless."—Felter's series of School Records, made to comply ter's series of School Records, made to comply with Kansas laws by a Kansas author and Kansas publisher. The best School Officers' Records in the market.—Felter's Elements of Bookkeeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.—The Annals of Kansas, a marvellous history of Kansas, written and printed in Kansas.—The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for twenty-five cents per annum.—The best Railread County Bank and Mercantile Blank Book twenty-five cents per annum.—The best Rail-road, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment for Kansas equal to the best in America.

Address. GEO. W. MARTIN, Topeka, Kas. Address.

The Western Review of Science and The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixty-four pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case, Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some

&c., &c., and numbers among its contributors some of the most earnest and capable workers in the of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific. and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country are Europe, and are chosen principally with refere to their reliability and their adaptiveness to the

popular taste. Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible. manner possible.

SATURDAY, AUGUST 31, 1878.

The editor-in-chief is at his desk again. Halle-

The Junction City Tribune is in for phonetic spelling - and so are we.

Tom Hughes acknowledges that the Industri-ALIST office is in good shape.

Mark Reeve is back again. He says that several young men from his part of the country are making preparations to attend the College.

The managers of the Brown County A., H. and M. Association will accept our thanks for a complimentary ticket to their Fourth Annual Fair, to be held Sept. 18-21, 1878.

Judging from the early arrival of students, we shall have a large attendance the coming term. A good number of old students and over thirty new ones have already rented rooms or made arrangements for board.

Several families in Manhattan have signified their willingness to take girls that desire to work for their board and attend the College. Young ladies wishing to make such arrangements should apply to A. A. Stewart.

The article on the outside, entitled "Waste of Labor in the Work of Education," is well worth perusal, and we hope that especially those of our readers who are teachers will read it. The address was too long for publication in one issue, and therefore will be concluded next week.

Ellsworth, of the Enterprise office, who, by the way, laid the foundation for his trade in this office. is doing some very fine job work, both plain and ornamental. The show bills which he got out last week displayed commendable taste and skill. Ellsworth is a genius, both as a writer and printer, and will never want for a situation.

The following new students have reported since our last issue: Lincoln Neusbaum, Ada Neusbaum, Riley county; J. R. Osborne, T. J. Gnash, Greenwood county; Miss Linda Hatch, Republic; Miss Ida Noyes and sister, Wabaunsee; George F. Thompson, Charles Messenger, Cowley; Misses Dora Edmiston, Cora Vaught, Flora Donaldson, and Mr. Alvin Donaldson, Butler.

As A. A. Stewart was returning home in his buggy one evening this week, his horse became frightened and started down the hill east of the College at break-neck speed. Finding that the horse was beyond control, Stewart attempted to pull him out of the road into the hedge fence and at the same time jumped from the buggy, lighting on his hands, hip and face in a healthy patch of sand-burs. Fortunately, the animal did run into the hedge, and this probably saved Stewart's life; for the lines were fastened to his leg, and if the horse had gone down the road, doubtless a fatal accident would have occurred. As it was, by the time the horse found he couldn't go over the hedge, Stewart had gotten loose from the lines and caught him. With the exception of a few slight bruises, stiffened joints, and a broken thill, no damage was done. While nothing serious did happen, it was indeed a narrow escape; and Stewart says he will never again take the trouble to reach out over the buggy and straighten the fly net - which was the cause of the accident.

It has been lively again this week in the College buildings and on the campus. Col. Davis, at the head of a small army of broomsters, bravely invaded the lonely territories claimed and occupied for weeks by King Spider and Queen Musca Domestica. Water flowed like blood. Many a hot battle was fought, but, like Hercules from the stable of the Augurs, they (the broomsters) returned victorious. Whatever mortals can accomplish with brooms, brush, water and soap has been

Another division was dispatched against the sand-burs and sun-flowers. Neither Bazaine with his horrible mitrailleuse, nor Robespierre with his bloody guillotine, did ever do any such deeds of terrible destruction. What is youth and beauty? we asked ourselves silently, when we saw the proud and golden helianthus sinking, one

But the battle is over and peace reigns again on the Hill. Rosy faces and golden hair will soon crowd the hitherto so lonely grounds, and the lecture rooms will resound the alto and soprano of Jung Kansas. You may now come and see us.

As the vacation draws to a close, we desire in this public manner to return our heartiest thanks to Mr. Walters for the generous and constant assistance which he has given us in the past three months. Purely from a love of the work and a desire to help us, he has been in the office nearly every day, carefully going through the hundred

and eighty exchanges which we receive, writing locals, and assisting in press-work and mailing. We shall long remember the vacation of 1878 and the pleasant and profitable chats which this intimate association with him has afforded us. The Hill is a rather lonely place in vacation, and the more so when one has been accustomed to the company of a hundred and fifty students and the busy hum and noisy hammers which are heard in the work-shops during term-time. So that company-good company, such as we have had-is very acceptable, indeed. And as this peace and quietude which together we have so greatly enjoyed is being broken up by the returning students and the increased life and activity, we are loth to say we are glad of it. We trust that all our vacations may be tempered with as much pleasure and profit as the one which now closes.

#### NATIONALIST ITEMS.

J. T. Ritchie, who has been quite sick, is now convalescent.

Hon. T. C. Henry was in town last Friday, on

Jasper Howard is home on a visit. All his friends are glad to meet him.

The round trip fare to Lawrence, during the camp-meeting is \$2 from Manhattan, \$2.25 from Ogden, and \$2 from St. George. A little girl in town has requested their family physician, the next time he digs for little babies

in the sand by the river, to bring one of them to A change in the weather occurred Saturday afternoon. The mercury had been up to 116° in the sun, but the wind changed to the northwest

and thick clothing was comfortable in the even-

We read a week or two ago, when the mercury stood in the nineties, Tice's prediction of a frost the last week in August, and we laughed in derision. But for a few of the chilly mornings of this week, we have actually shook with — apprehension. Shall not laugh at Tice any more.

#### ENTERPRISE ITEMS.

Johnston has erected a street lamp in front of his drug store.

6,000 bushels of corn is now being shelled at

Wilder Station for shipment. An excursion will start from Junction City for Denver, August 29th. Tickets for the round trip

\$20. Tickets can be purchased at the depot. The fact that there are very few farms to rent in this county is pretty good proof that people are satisfied to remain here.

Prof. Hougham, formerly of the Agricultural College, lectured to the Institute class Monday and Tuesday, on the subject of chemistry, illustrating his remarks by appropriate experiments. Professor understands his subject thoroughly and handles it well.

A man entered Judge Harper's residence Monday evening, during the absence of the Judge and his wife, and seized his little girl, Nellie, forced her on a lounge, and, threatening to kill her if she screamed, went into another room, secured a pair of shears, came back, and, asking her if she wanted her hair banged, cut off the front part of it, and leaving hair and shears, he left the house. The alarm was given and search made for the man, but without avail. He is supposed to have been a crazy tramp.

Prof. J. D. Walters, at one time a resident of Marysville, is now Professor of Industrial Drawing at the State Agricultural College, at Manhat-The Marysville delegation are under obligations to him for showing them about the College grounds.—Marshall County News.

Prof. J. E. Platt, of Manhattan, delivered a very interesting and instructive lecture before the pupils of the Institute, and many others, at the Congregational Church last Friday night. The house was filled to its utmost capacity, and a large choir rendered several selections - without the usual organ accompaniment, the organist being absent. The subject upon which the Professor talked was, "The Tools that the Teacher Uses."—
Louisville Reporter.

## DIRECTIONS TO APPLICANTS.

TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as posssble.

GRADES. Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in

the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed number of recitations; and no one will be permitted son, President, Manhattan, Kansas.

to have less than one industrial and three literary recitations.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath. EXPENSES.

There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is a Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.—Manual labor in the reci-ations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. - When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, t is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make onehalf their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have repromise anything more. Hitherto we have re-frained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Department, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Educa-Price, 75 cents a year. Address A. A. Stewart, Manhattan.

CALENDAR.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

TO NEW STUDENTS.

Bring the text-books you have been using. On string the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after change for enrollment. after chapel, for enrollment.

#### LITERARY SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870. Meets in College building every Friday at 2 P. M. Ladies admitted. New students cordially invited to attend. George L. Platt, President. to attend. George L. Plat Miss Estelle Bouton, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. LEWIS A. SALTER, President. TULLY SCOTT, Secretary.

#### RAILROAD TIME-TABLE.

#### KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going West..... 4:10 P. M.

FREIGHT ARRIVES.

Passengers with tickets are carried on any of the above-named trains.

GEO. C. WILDER, Agent.

relegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

H. S. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reckoned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Poyntz Avenue, Manhattan.

press-Making and Millinery.—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

Gardening for Profit.—Instruction and drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan.

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the highest breeding. Address E, M. Shelton, Manhattan,

Farming for Profit.—Special courses in Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

nglish Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Manhattan Bank.—E. B. Purcell, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

Athematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Club Rates.—The regular price of the Kansas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the INDUSTRIALIST for \$2.75; or the Farmer and INDUSTRIALIST for \$2.25; or the American Young Folks and the INDUSTRIALIST for American Young Folks and the Industrialist for

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T. T. HAWKES, Sup't Mechanical Department.
A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
MISS CARRIE STEELE, Teacher Instrumental Music.

#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second the degree in which he makes it his own. Hence the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its which work must be that of giving a useful and use chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one. FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as math-

ematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

# EARMER'S COURSE

	PARMERS	COURSE.	
FOURTH YE'R Spring. Fall.	THIRD YE'R. Spring. Fall.		
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology. 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Practical Geometry. 4. Horticut., Landscape Gardening. 5. Organic, Analytical Chemistry. 6. Practical Surveying.	1. Physiology. 2. Rhetoric. 3. Algebra. 4. Practical Agricul (elementary). 5. Physics. 6. Industrial Drawing.	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arithmetic, Book-keeping. 6. U.S. History, Industrial Drawing.

## WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

## WOMAN'S COURSE.

FOURTH YE	R   THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fa	I. Spring. Fall.	Spring. Fall.	Spring. Fall.
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# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies,

specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparetary to the professions: 2. That the great preparatory to the professions; 2. That the great from them.
majority of Kansas mechanics will also be more tory practice.

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies

INDUSTRIAL DEPARTMENTS

Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. | FOR FEMALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

Dress-making. Frinting.
Telegraphy.
Scroll-sawing.
Carving.
Engraving.
Photography.
Instrumental Music.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

#### DEPARTMENTS OF INSTRUCTION.

#### DEPARTMENT OF AGRICULTURE. PRACTICAL AGRICULTURE.

Second Year: - General principles of breeding; history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plan ways and subscill principles. the plow upon soil and subsoil; principles draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage; how to lay out a system of drains; house drainage; sewerage.

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; genera-advantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY.

Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of buttermaking; packing and preserving butter.

# DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and systematic, with a constant attention to the practical application of botany to the farm, orchard, garden, ursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practial drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management and the Woman's Course is prepared expressly of commercial and farm nursery; modes of prun-for their liberal and practical education. We ing; the orchard; fruit suitable for orchard and and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

## CHEMICAL DEPARTMENT.

PHYSICS.

This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to their history, properties, manufacture, and espe-cially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY. This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by labora-

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY.

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallography, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composi-tion of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of

SPECIAL COURSES Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

#### ENGLISH LANGUAGE.

Words are simply tools used to express ideas; Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called language, just as an engineer handles a locomotive; and no drill will be omitted or effort spared to and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant atten-tion given this subject by all the departments, and especially the practice required in the print-ing classes, affords superior advantages to the stu-

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of compositions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and penman-

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter the printing class, the printing-office being the work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS .- The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the topics included are:

Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech.

Stems: Their derivation; their offices and prop-

rties; their relation to other parts of words Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems. Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given operations are performed, but because they can neither add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING
Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

Algebra is included in the course as a preparation for the study of Surveying.

DRAWING.

The practical value of Industrial Drawing can hardly be overestimated, first, because its study is hardly be overestimated, first, because its study is the best drill for the development of the percep-tive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when lay-ing a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern or figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Depart-

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the props and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical ciples and their applications; and extended field practice is required in the use of the compass, level, transit and theodilte.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to

woman. FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household econincluded in "gardening" or "household economy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

Gardening is included in Practical Horticulture. See heading, "Landscape Gardening."

Household Chemistry."

hold Chemistry."
HOUSEHOLD ECONOMY

Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different the ability to do it. Instruction without from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlast-ingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry—and no more expensive.

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## KANSAS STATE AGRICULTURAL COLLEGE

TERMS OF SUBSCRIPTION, 75 cents per year, postage prepaid. Ten cents per month, postage prepaid. Payment absolutely in advance! Paper stopped at expiration of subscription. A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, provided by the special training of public schools. for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

follows:	
Normal education:	
Teachers	. 1.13= 1.13
Professional education:	
Ministers	. 0.43
Lawyers	. 0.55
Doctors	
Industrial education:	
In agriculture	. 59.13
In manufacturing and mechanica	1 14.63
In personal service	. 13.89
In trade and transportation	. 9.51=97.16
	100.00

AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Cansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. Recognizing the need for an education which ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,000 out of which all expenses of instruction are 000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

LOCATION.

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricult-ural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving and music. ough instruction and laboratorial or field drill in

#### Waste of Labor in the Work of Education.

[An Address by P. A. Chadbourne, LL. D., President of Williams College, Williamstown, Massachusetts.]

[Concluded from last week.]

STUDY MERELY FOR DISCIPLINE. It seems to be the aim of some textbook makers, and some teachers, too, to make every study as difficult as possible, for the sake of the discipline. No doctrine is more fallacious. Get your discipline by doing a greater amount of work and doing it in a better style. What sensible man would turn aside to ride over quagmires and stone heaps for the sake of more exercise for himself and horse? An oak tree might be felled with a stone hatchet, and one would get a deal of exercise in doing the job; but the same time and strength with a good steel ax would give as much exercise and leave something to show for the labor. Leave stone hatchets to savages; let civilized men use the sharpest steel axes they can find. They will thus do the most work and do it in the best manner. This principle of dealing with essentials mainly should prevail in all the work of education. We have too much to do to spend time fooling over complicated arithmetical puzzles which abound in some books - questions which no one should undertake to solve till well versed in algebra and geometry. At the proper stage of education, such puzzles, which are a discouragement to the young scholar because he thinks them essential to the subject, will be solved in the natural progress of his work. They are an annoyance and a discouragement simply because they are introduced before their time, before the study of the principles on which their solution depends.

# MENTAL IMPROVEMENT GRADUAL.

In this connection I ought to speak, not only of attempts to teach the child before he is prepared for the subject by previous study conditional for it, but also of that forcing system by which things are taught, or the attempt is made to teach them, before the pupil's mind is mature enough to grapple with them. I speak here of the natural maturity of mind through age. In the first place, there is a great difference in children as to the age at which they can profitably engage in the same studies. There is a difference in children belonging to different families, as to the time of the development of their mental powers as a whole and also as to the order of their development. This is plain enough to those who have compared successive classes from year, to year and have studied the history of families. Parents ought to understand this, but the majority of them do not. Teachers should study the mental condition of their pupils as carefully, to say the least, as they do the subjects they are to teach. The successful husbandman knows when the ground is ready for the seed, that germination may be sure and the plant become a vigorous grower. The inexperienced farmer or gardener, ambitious for an early crop, puts his seed at the earliest moment into the soil, only to find the seed wasted or his plants weakly in growth and failing in quantity and quality of fruit. Some whole schools are samples of this forcing system. Parents and teachers both join in the work, and rejoice together over the precocious scholars who learn by rote and explain beautifully without ever comprehending what they explain. Such unfortunate prodigies of learning lose by this cramming system all the pleasure and healthful stimulus to vigorous growth that comes to the one who, with powers fitted for the work, incorporates the studies of each day into his intel-

hend them fully without weariness to the mind or over-draft upon the body. The growth of every day is to the latter healthful; and thus it happens that so many who commence study late in life soon outstrip those who have been delving for years.

STUDIES MUST BE ADAPTED TO AGE AND DEVELOPMENT OF PUPILS.

Do not charge me with undervaluing early education. It is a great thing for the child from the first to breathe a literary atmosphere, and in rare instances the crowding I have spoken of makes real prodigies of learning, of which John Stuart Mill was an example—"a fine example," some would say; a sad warning, I should

In all the earlier years, say to the age of fourteen, the studies should be light—just enough to keep the appetite for learning keen — while the physical system has no strain upon it by over-confinement or hard mental labor. In these early years the simple studies of spelling and reading and the simple forms of mathematics, in which the large majority of students who apply for admission to college are woefully deficient, should occupy the cheif attention as studies in the class-room. The outlines of geography and history should be so fully given that the reading of the newspaper shall be intelligent work, because the scholar knows where events transpire; and such training in natural history should be secured that the senses may be on the alert for every new form and phenomenon in the natural world. By those who have the opportunity, French or German might be learned orally, without the details of grammar. If this is done, with no more labor than is often wasted in teaching grammar and some parts of mathematics, when the scholar is utterly unprepared for the work; if this is done and a taste for choice reading secured, at the age of fourteen or fifteen you are ready to begin the continuous work of education in earnest, so that the student shall not only acquire knowledge rapidly, but shall remember the processes by which he acquires it. And this remembrance of the processes is hardly less valuable than the knowledge itself, especially to one who is to engage in the work of instructing.

# WANT OF PROPERLY GRADING SCHOOLS.

The waste of labor that comes from imperfect classification of schools is so apparent that all understand and deplore it. This evil in country schools cannot be completely remedied, although much can be done by the skill and tact of the teacher in bringing together all the elements that can be combined, and in providing in the most efficient manner for the exceptional studies that often range from the primer to rhetoric and physics. In schools that are classified, there is often no little waste in the excess of machinery and multiplicity of rules. We criticise here with great caution, for every military man and every presiding officer in a deliberative body and every experienced teacher will tell you, and tell you truly, that many rules have borne the test of time as a means of rapid and efficient labor that, to the inexperienced, seem useless or burdensome.

# RULES OF DISCIPLINE.

But, after all, there is too much tendency in large, well-classified schools and colleges to make the machinery of government cumbersome, so that the rules become such a weight upon the student as to depress the mind and repress that spontaneity of individual action so esseutial to the healthy growth and development of the intellect. Just as soon as a student feels that, instead lectual life, because he is able to compre- and worked as a whole, much of his indi- to warm snow or make the blind see by

vidual responsibility is lost, except to do his part in the machine. Personal responsibility, constant, as though no other student were associated with him, is the trne condition of development; and, unless you secure the condition fully, much of the student's time and strength is wasted, and your own strength is wasted in managing the machine, which, when the school dissolves, is worthless. Machinery is as essential in a school as in a cotton mill, but the simplest machinery possible that will accomplish the work is best in both. Simplicity and directness are doubly essential in a school, because you are dealing with living beings, and it is the contact of the living teacher with the pupil in the whole process of education that arouses activity and makes every germ of knowledge quicken to the fullest development. This is no plea for lax government; for the teacher who cannot govern promptly and perfectly wastes a large portion of his time and strength directly, and does mischief enough to the character of his pupils to over balance any learning he may impart

#### OLD ERRORS IN TEXT-BOOKS.

Another source of waste is the copying of old mistakes and absurdities in text-books and methods of instruction and government, simply because they are venerable and have been practiced and recommended by those who have been famous in the work of education. We can hardly illustrate this point fully without danger of troubling some one who has written a book or who still clings to some school tradition that might be denounced. We must be content with stating the principle and giving one or two illustrations.

The Linnean system of classification of plants was a purely artificial system, understood to be so by its great author, and yet such was the prestige of a name, and so persistent the system of copying, that this system held its place in our text-books and schools long after it might have been displaced by a natural system that represented botanical truth.

## EARLY MORNING PRAYERS IN COLLEGES.

The early morning prayers, as formerly conducted in many colleges, were an example of the absurdities even wise men will accept from custom. Students were called out of bed before it was light on cold winter mornings, to hurry to a chapel without fires, and then pass to the recitation-room to recite by the dim light of oil lamps.

The ill temper of the students found expression in rebellions and attacks on chapel and recitation-rooms. And yet it was very difficult to change this old custom, handed dow nfrom the dark ages, a custom injurious to health and good morals and opposed to common sense.

## CLASSIFYING STUDENTS IN COLLEGES.

There are two sources of waste in educational labor over which the teacher has but little control. The first is the natural stupidity of scholars, who find their way into every school and college. It is no waste of labor to spend time on dull scholars, if we attempt to teach them only what they are capable of learning and what it is essential they should learn. They are entitled to extra labor, as are the deaf and blind. But the mischief is, stupid students are often forced, by their parents or by their own over-estimate of their powers, into classes where they are a dead weight upon the movements of all connected with them. The exhaustion that comes to the faithful teacher from daily lifting and pulling and encouraging and driving such students is of being dealt with personally, he is only a known only to those who have toiled long part of a great machine that is controlled and seen their efforts as useless as attempts

forte of all men. And while some men attempt only those things for which they are fitted, others are constantly attempting those things for which they are entirely unfit. Their life is a failure because they never understand their own capabilities. Almost every college has students who would make good business men, good specialists in some science, perhaps, but for whom an attempt to acquire a college edu-cation means a waste of time and effort on their part, a waste of strength and patience on the part of their instructors.

IRREGULARITY OF ATTENDANCE OF PUPILS

There is a second hinderance from parents that interferes with every teacher's work; this is their encouragement to irregularity in school duties. It is marvelous what a number of marriages and special occasions occur in some families, as an excus for taking sons and daughters from school. The sons of some families are almost constantly absent at the beginning of the term. The parent sends an excuse which every teacher feels is no excuse. The student is injured by the loss, and the whole class feels the effect. If the lessons are missed or made up, there is waste of labor for the teacher, which he can illy afford. His work is hard enough at best, and thus to load him with extra work or depress him by rendering his labors, term after term, defective, through the caprice of the student and the ignorance or inconsiderateness of the parent, is a misfortune to him and a shame to the offenders.

ENTHUSIASM ON PART OF TEACHER.

I have but two points more to make, and these relate especially to the teacher. There is failure to secure energetic work and the best results from lack of enthusiasm. Without this no teacher can have the best success, however learned and faithful and hard-working he may be. Enthusiasm is the heat that softens the iron, that every blow may tell. Enthusiasm on the part of the teacher gives life to the student and an impulse to every mental power. It gives the work of the school-room a quickening impulse, and by this impulse makes the student a gatherer wherever he goes. It gives to the student independent power; power to go alone. When this is accomplished, there is no more waste in lifting, dragging or driving. It was the enthusiasm of Linnaus that filled his lecture-room with students from all parts of Europe, and then sent them over the world to gather new treasures for themselves and their master. It was the enthusiasm of Agassiz that clothed the commonest things with new life and beauty; that charmed every listener and transformed the aged and the young, the ignorant and the learned, into joyful learners. Another man, with the same learning, the same devotion, and equal labor, might not accomplish one-tenth as much because he failed to enkindle the interest that quickens every mental power and lights the fire of latent genius, which, once beyond the range of those whose minds have quite black, hair very fine and glossy, and enkindled, reveals to its possessor truths far not been touched by this life-giving power of enthusiasm. It is said one loses this enthusiasm after a while. Then he ought to stop teaching. If he cannot grow enthusiastic presenting the plainest rules of arithmetic and Latin for the fiftieth time to a new mind, then he is unfit for his work, and should spend his strength on stone and clay, which can only yield to force, but never take form at the mere glow of enthusiasm in the worker.

# NEGLECT OF MORAL TRAINING.

But, last of all, there is a waste that brings loss and sorrow to the world. This is neglect of moral and religious instruction in connection with intellectual training. Who are the men who are causing humanity to blush by their dishonesty and corruption, poisoning the world at the same time that they are cheating it and astounding it? Why, men who are educated, but who dispise the slow methods of honest gain and reject the old-fashioned morality of the Bible. There must be a searching for the foundations; and that instruction or that education which does not make prominent justice as well as benevolence, law as well as liberty, honesty as well as thrift, and purity of life as well as enjoyment, should be stamped by every true educator as a waste and a curse; for so it will prove in

We understand the importance of our work, the value of mental and moral cul- obtained from these organs, we have been McNair, Alice E.

describing colors. Book learning is not the ture. We see the inviting fields that call the student to labor, and the waiting world that needs his time and the strength of his best-cultured powers. Let us see to it that no old notions, no routine of duty, no shrinking from work or responsibility shall spoil our harvest, so that at last we shall look back on a waste of energy and time. Let us work while the day lasts with our might. Let us see that all our work is of the best kind. Let us train our students for the study, for the family, for the state, for the world. If we send them forth with the ability to labor, with a love of truth and justice, and with a spirit of self-sacrifice, our work will be a blessing to them and to

# THE INDUSTRIALIST.

SATURDAY, SEPTEMBER 7, 1878.

JNO. A. ANDERSON, Managing Editor. ASSOCIATE EDITORS, MEMBERS OF THE FACULTY.

The press of Kansas will confer a favor upon us by publishing the following an-

nouncement:

The Fall Term of the Agricultural College began Wednesday, September 4th, and will close Wednesday, December 20th, 1878. Tuition absolutely free.

#### The Galloways at Paris.

The recent triumph of the polled Galloway cattle at the great Paris show, has awakened a great interest in a very valuable and, in this country, much neglected breed. The following description of the prize winners, taken from the National Live Stock Journal, will interest those who have seen the specimens upon the College farm:

There were special prizes "d'Aptitude" -that is, for animals or races best adapted for beef, for milk, and for labor — of objects of art, each of the value of 2,500 francs. Of these prizes, the Aberdeen Angus (Polled Galloways) took the prize for beef, the Flemish for milk, and the Limousin for work cattle. Mr. W. McCombie, of Tillyfour, Aberdeen, Scotland, got the prize for the Galloways, the others were taken by Frenchmen. I was really surprised at the beauty, symmetry, and general fine points of these Aberdeen cattle before I knew they had received any special premiums; and except that they were mostly black in color, and without horns, they seemed to me in contour like magnificent Durhams. Indeed, was quite surprised to find how closely all, or nearly all the breeds of cattle exhibited, were bred to the type of the improved Short-horn. The bull that took the special prize for aged animals for slaughter, was 3 years 3 months old, very square built, low, fine limbed, long bodied, with straight, broad back, full, deep chest, and was especiially fine in neck and head. His color was handling mellow and perfect. Except that he seemed to me just a little too long bodied for his height, I thought him one of the nandsomest animals I ever saw; and all the lot, 21 in number, were exceptionally fine. They took nine prizes and six awards of "Mention honorable."

The readers of the Industrialist will bear us out in the statement that we have never been partisans as regards any one breed of cattle. On the contrary, we have always held that there is little if any rivalry between the breeds; that every breed has its place; and that a given breed will be a success only when it is selected with reference to the character of the farm and the circumstances surrounding the farmer. Nevertheless, we take not a little pleasure in chronicling this triumph of the "polled Scots" at Paris. For five years we have kept a few Galloways upon the College farm for purposes of instruction, and during this time we have exhibited them to several hundred persons. A large majority of these visitors have objected to the Galloways that they had no horns, and when in reply we have questioned whether sirloin steak or "gilt-edged" butter was ever

told that they were "black;" when to this we have stated the fact that their black skins covered beef that sold in the London market for one to three cents per pound more than that of Short-horns, we have been ingloriously silenced by the alarming statement that "anyhow, they look like buffaloes." We feel now that this Paris award has put an argument in our mouth that will completely squelch the next man who dares to liken the Galloway to the original cattle of Kansas.

Those farmers and breeders who have a 'weather eye" open to the signs of the times, will do well to remember that the Galloways are rapidly growing in the popular estimation. Moreover, the Galloway never loses ground that he has once occupied. If his lot is cast in a region of moderate fertility, his easy keeping qualities, hardiness and vigor make him a profitable animal even there. If, on the other hand, he takes his chances in rich pastures and large feed, he constantly improves, to the great satisfaction and profit of his owner.

We have tested this matter upon the College farm, and we find that a twelve hundred-weight Galloway cow keeps in better condition upon one-half the grain required to keep a fifteen hundred-weight Short-horn, -Prof. Shelton.

Students Enrolled Since Sept. 4, 1878.

NAME.

COUNTY.

Riley. Abbott, Ella Abbott, Frank Riley. Riley. Abbott, Harmen Riley. Adams, Emma L. Allen, Chester Mitchell. Anthony, Mollie Cherokee. Ellsworth. Ashmead, George R. Shawnee. Ayers, Sarah Bates, Charles W. Vermont. Marshall. Beacham, Augustine Blain, Arthur T. Riley. Buchli, Bartholomew Wabaunsee. Buell, Delight A. Campbell, Emma Riley. Riley. Campbell, Ettie A. Riley. Riley. Campbell, May Carter, John E. Shawnee. Chenoweth, Charles C. Cherokee. Saline. Coburn, Ella Missouri. Coe, Henry F. Missouri. Coe, Jennie A. Cox, Lizzie R. Riley. Johnson. Dickson, A. F. Dickson, James B. Johnson. Butler. Donaldson, Alvin Butler. Donaldson, Flora Butler. Donaldson, George Dow, George H. Edmiston, Dora Emrick, Katie Riley. Illinois. Pennsylvania. Lincoln. Farnsworth, Henry E. Foreman, Albert M. Riley. Riley. Glossop, Emma Gregg, Frank B. Coffey. Griffing, William J. Hatch, Linda Riley. Republic. Hillyer, William J. Jefferson. Riley. Himes, Hattie Riley. Hosmer, Mina Howden, George W. N. Chautauqua. Johnson. Hulett, C. M. Humphreys, George Sumner. Cherokee. Hunt, Henry L. Cherokee. Hutsell, Sallie Jaquith, Walter W. Jeffrey, William J. Davis. Riley. Jeffrey, Fletcher Jones, Horace B. Kingsbury, Eddie L. Riley. Wabaunsee. Coffey. Shawnee. Kinsey, Dora Knipe, George D. Riley. Riley. Knostman, Emma Mitchell. Leach, Darwin S. Lewis, Issie Riley. Lyon. Lewis, Samuel O. Neosho. Light, Willis Pottawatomie. Limbocker, Clyde Pottawatomie. Limbocker, Clarence Luse, William P. Missouri. Cherokee. Lynch, Fred C. Lynch, James H. Cherokee. Pottawatomie. Mails, Mattie Rice. Mann, John McBratney, William Nemaha. Johnson. McGuire, Katie I. Wabaunsee.

McNair, J. L. McNair, S. E. Messenger, Charles Miller, Edgar Millikan, Minnie E. Mills, Hattie L. Moore, Thomas R. Morgan, S. M. Morrow, John N. Myers, Wirt S. Neiman, Charles Noland, Manda Noyes, Amy E. Noyes, Ida L. Outt, J. F. Paine, Edwin C. Parker, Grace Pettit, D. C. Pfoutz, William A. Platt, Henry A. Randel, Alta Randel, Charles F. Randel, Henry A. Records, C. M. Reed, Willie S. Reeve, Mark A. Richards, Bettie Richardson, Noble A. Rollings, W. E. Rushmore. H. C. Salter, Lewis A. Scott, Nannie Shartell, Cassius M. Sickels, Maria E. Sigman, George L. Sloan, John A. Southwick, Charles A. Spicer, Joseph C. Spooner, Alice G. Stiles, Charles H. Stoner, Fannie A. Strong, Grace R. Talbott, John R. Tarrant, Will S. Thompson, George F. Throckmorton, George Travis, Jared M. Vaught, Cora Vincent, Ella E. Whaley, Rowena Whaley, Willie E. Wilson, Elmer E. Wood, Clarence E. Woodburn, William Woods, Albert O. Wright, Robert H.

Wabaunsee. Wabaunsee. Cowley. Davis. Johnson. Missouri. Smith. Lyon. Johnson. Allen. Nemaha. Riley. Wabaunsee. Wabaunsee. Montgomery. Lyon. Riley. Cherokee. Atchison. Riley. Nemaha. Nemaha. Nemaha. Chautauqua. Riley. Lyon. Pottawatomie. Wilson. Ottawa. Jefferson. Montgomery. Cherokee. Chautauqua. Montgomery. Chautauqua. Clay. Riley. Lyon. Clay. Wabaunsee. Atchison. Riley. Atchison. Cowley. Cowley. Coffey. Wilson. Butler. Riley. Riley. Riley. Cherokee. Riley. Nemaha. Sumner. Ford.

Educational Calendar. — A wide-awake, spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the INDUSTRIALIST. Geo. W. Mortin Teacher.

Habits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Ked-zie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

Agricultural College Lands. - These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of Pike's Peak," the interesting address originally like and under the ausnices of the Kansas State Pike's Peak," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "The World A School," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher. Topeka, Kansas.

work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, a employed by the Proof-Reader; in Book-Keeping and in Industrial Drawing, as the best developer of that teste peopsyarily everying by every good of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer, Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST by the Department furnishes advanced students the requisite drill in newspaper work.

SATURDAY, SEPTEMBER 7, 1878.

No room this week for Enterprise items.

The College has fairly boomed this week, and is opening out splendidly.

All the chairs of the College are filled, and the whole force was on hand opening day ready for business.

Judge Kingsbury and Major T. C. Henry attended a meeting of the Executive Committee last Wednesday.

Recitations began yesterday, and on Monday the whole machinery of the College will be running as steadily and smoothly as if there had not been

Professor H. E. Van Deman, who was recently elected to the chair of Botany and Practical Horticulture, arrived in Manhattan last Tuesday. He is boarding at Prof. Platt's.

Seventy-six per cent of the students at the Agricultural College are from other counties than the one in which it is located. The usual percentage of Kansas institutions is about fifty.

Mr. W. L. Hofer, of Deposit, N. Y., has been employed as teacher of instrumental music at the College. Mr. Hofer has come West to recover his health, and is highly recommended as a teacher.

The Senior class of this year will number nearly a dozen, as against four of last year. Old students who, if present, could graduate, and who desire to do so, should notify us of that fact immediately.

There were some "conflicts" in the assignments for recitation yesterday, as is always the case in a new time-table; but a re-adjustment of the latter has been effected, which removes all the difficul-

Mr. Bennett came up from Silver Lake on Thursday, and says he is going to push the wood-work on the new building right along. The mason work

put in an appearance.

A. A. Stewart's horse ran away again this week. His wife, who was riding with him, was bruised considerably, and the buggy was badly broken. For the benefit of all interested, it might be well to add that Stewart has sold that horse.

Mrs. Prof. Platt returned from her extended visit East last Wednesday. She renders the common verdict - no State like Kansas, no town like Manhattan. A social was held at Prof. Platt's on Thursday evening, at which the many friends of "the Mrs." heartily welcomed her home.

The largest number of candidates for admission to the College ever before examined at one time was forty. Last Wednesday sixty new students were examined, and up to date sixty-eight have been. All of which very clearly shows that the opportunity to obtain a thorough and profitable education is becoming more widely and promptly appreciated.

every Sabtath afternoon. This organization was formed for the special benefit of the students and young people of Manhattan, and it is hoped that those who are interested in the cause which it espouses will lend a helping hand. The second anniversary meeting of the Union will be held in the Presbyterian church next Sunday evening. Rev. Mallory will preach the annual sermon.

The Alpha Beta Society held its first regular meeting yesterday afternoon in Prof. Platt's room. Vice-President H. F. Coe called the meeting to order. Devotion by L. A. Salter. Emma Glossop appointed Secretary pro tem. The following officers were elected for the ensuing term: President, Arthur T. Blain; Vice-President, Will H. Sikes; Recording Secretary, Jennie A. Coe; Corresponding Secretary, George H. Perry; Treasurer, H. F. Coe; Librarian, A. A. Stewart; Marshal, Wm. McBratney. The following directors were elected: Misses Kinsey, Mails and Parker, and Messrs. H. A. Platt, T. J. Wyland, S. E. Mc-Nair and C. J. Reed. The names of F. M. Jeffrey, W. J. Jeffrey, Chas. W. Bates, and Miss M. E. Sickels were proposed. Mr. Davis was engaged as janitor. Question for debate next week: "Resolved, That the beauties of nature surpass those of art." Affirmative, G. H. Perry and Jennie A. Coe; negative, S. E. McNair and H. F. Coe. Appointments: Essay, Grace Parker; declamation, Dora Kinsey; select reading, Wm. McBratney. Committee on music for next meeting: W. H. Sikes and Wm. McBratney.

#### NATIONALIST ITEMS.

A neat fence, freshly painted, adds much to the appearance of Prof. Platt's place.

On an average one hundred and fifty freight cars pass each way over the K. P. every day.

For prolonged hot weather the summer of 1878 has not been equaled in the memory of the oldest inhabitant.

I. T. Goodnow is preparing to prove that a really nice syrup can be made from sorghum. He intends making up a large quantity.

The College opened with 102 scholars present 16 more than were ever present on the first day before—and many more entered next day. A larger proportion than usual was from abroad.

Heretofore the Manhattan Fair has been the best in western Kansas, and we know of no reason why it should not be this fall also. There seems to be an unusual amount of interest in the matter now, and we trust that it will increase.

E.C. Persons has sent a lot of apples to the St-Louis Exposition, one of which measured fifteen inches in circumference, and weighed twenty-one ounces. The rest were but a trifle smaller. Mr. P. says they are excellent eating apples.

A new express car has been placed on the rail road. It is of the latest and most approved style, and fitted up with all the improvements necessary to the correct handling of express goods. The display of locks, bolts, bars and chains, indicate that safety as well as convenience have been combined in this correct.

#### DIRECTIONS TO APPLICANTS.

#### TERMS OF ADMISSION.

Candidates for admission must be fourteen years Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as possible.

#### GRADES.

Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. on the new building right along. The mason work is nearly done.

One hundred and twenty-two students have been enrolled this week, which is up to the best of figures heretofore reached in the opening week of the College. Of course many additional ones will excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be alleged to take a core than the prescribed numerical states. be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary

## RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 a.m. on academic days, and divine service once every Sabbath.

## EXPENSES.

There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instru-ments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the We are requested to extend an invitation to all students, old and new, to attend the Young People's Christian Union, which meets in Manhattan month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

## LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.—Manual labor in the reci-ations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held par-amount in the direction of this labor, the practice amount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. — When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten

#### AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the quesit is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire suffi-During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

#### RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

#### PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Depart-ment, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Educa-tion. Price, 75 cents a year. Address A. A. Stewart, Manhattan.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

#### TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas..

## LITERARY SOCIETIES.

ALPHA BETA .- Chartered, December 26th, 1870 Meets in College building every Friday at 2 P. M. Ladies admitted. New students cordially invited to attend. George L. Platt, President. MISS ESTELLE BOUTON, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. LEWIS A. SALTER, President.

TULLY SCOTT, Secretary.

## RAILROAD TIME-TABLE.

# KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. Going East. 12: 20 P. M. Going West. 4:10 P. M.

FREIGHT ARRIVES.

Going East...... 2:55 P. M., and 10:30 P. M. Going West...... 6:20 A. M., and 9:00 A. M. Passengers with tickets are carried on any of

the above-named trains.

GEO. C. WILDER, Agent.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

S. Roberts, M. D .- Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Yocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reckoned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Poyntz Avenue, Manhattan. 19-3m Poyntz Avenue, Manhattan.

Dress-Making and Millinery.—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

The Farm Department of the Agricult-ural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the high-est breeding. Address E, M. Shelton, Manhattan, Kansas.

Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

nglish Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Anhattan Bank.—E. B. Purcell, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

ough drill in Arithmetic, Book-Keeping. Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

club Rates.—The regular price of the Kansas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to an address for one year the Engmer the American publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the Industrialist for \$2.75; or the Farmer and INDUSTRIALIST for \$2.25; or the American Young Folks and the INDUSTRIALIST for \$1.00. 26-tf

Kansas Text-Book, for teachers and A students. Elements of Agricultural Geology, for the Schools of Kansas, by *Prof. Wm. K. Kedzie, M. S.*, of the Kansas State Agricultural College.

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact."

In two parts: Part First—Elementary Geology Part Second—Origin and Formation of Soils.

Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan,

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The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixty-four pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case,

Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

popular taste. Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other manner nossible 33-4w manner possible.

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#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State for the specific purposed is guided by the State for the specific purpose. and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an educa-tion; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acthe following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which fourth years are the spine of the course, to which the others are as ribs and muscle.

## FARMER'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology. 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Practical Geometry. 4. Horticul., Landscape 5. Organic, Analytical Co. 6. Practical Surveying.	1. Physiology. 2. Rhetoric. 3. Algebra. 4. Practical Agricul. (elementary). 5. Physics. 6. Industrial Drawing.	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arithmetic, Book-keeping. 6. U.S. History, Industrial Drawing.
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# WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly and the for their liberal and practical education. have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

## WOMAN'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
6.514.55.5.1	6.57.4.31.7	6.57.4.39.1	6. [ 5. ]
Farm Economy, Special Hygiene Geology, Mineralogy. Polit! Economy, Practical Law Zoology. Phys'c'l Geography, Meteorology Logic.	Botany, Entomology. Inorganic Chemistry. Industrial Drawing. Horticul., Landscape Gardening Organic, Household Chemistry. Household Economy.	Physiology. Rhetoric. Algebra. Literature. Physics. Industrial Drawing.	Drill in English. Drill in Arithmetic. Industrial Drawing. English Structure. Adv'd Arith., Book-keeping. U.S. History, Industrial Drawing

## MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in 'the Farmer's Course is not

knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. | FOR FEMALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making.

Dress-making. Printing.
Telegraphy.
Scroll-sawing.
Carving.

Turning.

Wagon-making.
Painting.
Blacksmithing.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

#### DEPARTMENTS OF INSTRUCTION.

#### DEPARTMENT OF AGRICULTURE. PRACTICAL AGRICULTURE.

Second Year: - General principles of breeding history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage; how to lay out a system of drains; house drain-

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; genera-advantages of a rotation; the best rotation with reference to disposition of labor, production of reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmburges; barre houses; barns.

FARM ECONOMY.

Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; preking and preserving butter making; packing and preserving butter.

DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and sys tematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practi-cal drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of prun-ing; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally availtions of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

## CHEMICAL DEPARTMENT.

PHYSICS

This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to their history, properties, manufacture, and espe-cially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboratory practice.

CHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY.

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity; laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observations is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallography, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composition of food; bread; tea, chocolate and coffee butter and milk; ripening and preservation of fruits, etc.

Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE.

Words are simply tools used to express ideas; and, since the vast majority of our communica-tions are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called language, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice production of the subject of the constant attention of the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the stu-

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications,
variations, relation and dependence.

Sentences: Drill in statement of ideas; descrip-

tion, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of compositions printed as written; proof reading; grammatical construction; superfluous words and

clauses; drill in reading, speaking and penmanship.

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter
the printing class, the printing-office being the

work-shop of language. STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS.—The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the topics included are:

Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech.

Stems: Their derivation; their offices and properties; their relation to other parts of words.

Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems.

Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English, the principles to be observed in

dance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of

the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the

in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering and omces of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given operations are performed, but because they can neither add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops, construction of houses, sales of expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculations and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet in the field is also given. is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

Algebra is included in the course as a preparation for the study of Surveying.

DRAWING.
The practical value of Industrial Drawing can The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topometrical Drawing during the terms indicated by object, Model, Perspective, Mechanical and Topo-graphical Drawing, during the terms indicated by the Course of Study. In addition, constant prac-tice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turn-ing, Scroll-sawing, Carving, Engraving and Print-ing shops, and to fabrics in the Sewing Depart-ment.

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the prop-erties and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mattery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical prin-ciples and their applications; and extended field practice is required in the use of the compass, evel, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to women.

woman.

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management etc. A course of lectures is delivered.

omy;" such as butter and cheese-maring, darly management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

GARDENING is included in Practical Horticulture. See heading, "Landscape Gardening."

HOUSEHOLD CHEMISTRY. See heading, "House-

hold Chemistry."

HOUSEHOLD ECONOMY
Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlastingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry — and no more expensive.

Published every Saturday by the PRINTING DEPARTMENT OF THE

# KANSAS STATE AGRICULTURAL COLLEGE.

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#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned pro-fessions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these voca-tions, as shown by the last United States census. Of every one hundred persons engaged in a voca-tion by which money is gained, the ratios were as

101101101	
Normal education:	1.13= 1.13
Professional education:	0.40
Ministers	
Lawyers	0.55
Doctors	
Industrial education:	
In agriculture	59.13
In manufacturing and mechanical	14.63
In personal service	13.89
In trade and transportation	9.51 = 97.16
	100.00

AGRICULTURAL COLLEGE. Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and pu in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education. ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intel-ligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in ough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dress-making, printing, telegraphy, carving, engraving

# The Prospect of the Wheat Crop.

The New York Financial Chronicle discusses the wheat prospects as follows:

For the crop year ending the 1st of August, we exported from ports of the United States about 100,000,000 bushels of wheat, including wheat reduced to flour. We may have for the year just begun 320,000,000, but the increase in quantity is practically reduced somewhat by the deficiency in quality.

Great Britan has undoubtedly a good average crop, and the Black Sea is open to her buyers. These facts, with the increased yield in California and Oregon, will compensate her for any deficiency there may be in the yield of spring wheat in our Northwestern States, for she is the principal buyer of our surplus of spring wheat, as it dees not seem to suit the continental mar-

What shall be done with our admitted large surplus of winter wheat? It seems probable that it will all be wanted by the western portion of the continent of Europe. Accounts agree that the wheat crops of France, Italy and western Germany are deficient. France and Italy are usually exporting countries; and with their large population a deficiency becomes a serious matter. Not only must their own wants be supplied, but the wants of countries dependent upon them. The exceptionally large shipments of flour which have recently been made hence to Brazil are one effect of this change in the situation; while the very heavy shipments which have recently been made hence to the continent of Europe are another.

We conclude, therefore, that there would seem to be nothing in the general aspect of affairs to lead to the anticipation of any important decline in prices. Great Britain will probably want less of our spring wheat, but we have less to spare. Our yield of winter wheat is greatly increased, but its quality is not so good; more will be required to produce a given quantity of flour; and there is every prospect that the surplus will all be wanted at full prices. It is true we have heretofore found a continental demand a very fitful and uncertain base of values. The wants of the continent may be very large in the aggregate, and yet the demand from that quarter may cease altogether for considerable periods; but there would seem to be little reason to doubt that our surplus may all be disposed of at within ten per cent of the average prices realized for last year's crop.

## American Mechanical Genius.

The London Times of August 22d prefaces a long account of the American mechanical display at Paris with the following remarks:

"It may almost certainly be predicted of any modern mechanical congress that the Americans will carry off the palm for novel and ingenous application of force to practical purposes, the substitution of mechanism for hard labor in new and curious contrivances, which to the amateur in such matters, surprises as much by the new ways in which old problems are attacked as by the fine way in which the work is done. The mass of invention and practical result from it produced by the Americans within the century, and especially within the last twenty or thirty years, is so great and so important in results, that it presents an important problem in political economy - one especially interesting to Englishmen, as American mechanism is an offshoot from English, but an offshoot so peculiar in its character the most interesting thing in America was done in this city, be placed side by side \$10,432,000.—Champion.

its Americanism, and so we may say that the most curious feature of American mechanism is its distinctively American feature. As mechanical science progresses, the greater and more important inventions become elaborated by, and the property of, the nation who push that science furthest in its studies. The result is forseen, studied, and developed with method and certainty, and great industrial revolutions are effected with a certain and almost calcuable progress. In this process England has long led, and still leads, the world, owing to favorable conditions of capital and labor. Fulton built the first successful steamer on American waters; but all the latest and most important advances in steamship building are English, and the great mass of steamers afloat are English. The first monitor was American; but the puny craft of that construction across the Atlantic would all go down before one of the last English build; and though Rodman and Dahlgren instituted the experiments to which we owe most of the present knowledge of the power of artillery and gunpowder, English artillery has left the practical transatlantic results out of the chance of competition.

"Yet in spite of this the activity and insight of the American inventive genius develops more that is new and practical in mechanism than all Europe combined. The New Englander invents normally; his brain has a bias that way. He mechanizes as an old Greek sculptured, as the Venetians painted, or the modern Italian sang. A school has grown up, whose dominant quality, curiously intense, wide-spread and daring, is mechanical imagination. It is not the professed mechanic or iron-master who invents, any more than the school-master or the farmer. As Tintoretto left his dyeing to become a great painter, the American, be he bank clerk, pedagogue, backwoodsman, or plowman turns in his busy brain some problem of his own, suggested by his experience of ill or too slowly done work, and like Archimedese in his bath, he suddenly finds it and rushes away with his "Eureka" to some place where he can make his model or get it made - more frequently the former for want of funds to get it made. There was a want the man had felt, an ideal to be worked out, and in his meditations suddenly the thing flashed on him, and is moment. The number of inventions, useful and useless, thrown off in this way in the course of a year, of which only a small proportion attain the realization of the Patent Office, can only be imagined by those who have lived among New Englanders at home."

## Drawing.

Take a hundred carpenters who have been well taught in the elements of drawing (for which the free public schools are unquestionably equal) and another hundred who have no knowledge of drawing, and the earnings of the first hundred will exceed the earnings of the second by at least fifty dollars a day, or fifteen thousand dollars a year. Now, what is true of the carpenter is true of the stone mason, the machinist, the tinner, the locomotive builder, the shoe-maker, the hinge-maker, the carriage-maker, the cabinet-maker, and, indeed, of every one who constructs objects having length, breadth and thickness. Of the pupils in our public schools, a large majority of the boys at least will enter into some of these pursuits. In the face of these facts can it be said that drawing is a study of no application? What other study has so direct a practical bearing on industry?

It must be apparent that the educational

with other fundamental studies, and be taught in all schools throughout the whole school course, from the lowest primary classes to the most advanced pupils in the grammar schools. Begin at the bottom step of any ladder and the ascent is both easy and natural. Teach children drawing from the beginning of their school course, and they are taught to see intelligently, and thereby are qualified to observe, to compare and to express their knowledge easily, naturally and accurately. Are these acquirements of no practical advantage?

That man, whether he be manufacturer or merchant, whether he be mechanic or artisan, no matter what branch of industry he may be engaged in, who can quickly and accurately and intelligently see whatever is placed before him, possesses a decided advantage over the one who does not possess

this qualification. Drawing is the proper way to express what the eye sees, indeed the only sure test of what is seen. As the future prosperity of the country will depend largely upon diversified industrial development; as the great majority of the pupils of our public schools must enter into these industrial occupations, in one position or another, it seems only the part of wisdom to recognize the fact, and in our public schools so arrange the instruction that what pupils learn in their school years, will have some practical relation to the occupation of their adult years.—American Journal of Education.

In 1873 we imported \$19,750,702 worth of rairroad iron. In 1878 we imported the same article to the value of \$530. We are making our own iron now. In fact, American rails are being used in old England.

PROFESSOR BEAL states that in pelargoniums a variegated scion has been known to induce variegation in the stock. A potato scion set into a tomato plant induced the latter to set small tubers in the axils of the leaves. The grafting of an artichoke plant into a sunflower causes the latter to set tubers under the ground.

THE Troy papers were crowing last week over a peach that measured ten and threequarter inches in circumference, and was called by some double-jointed name or other, complete in all its essential parts from that and though we hate to tumble their air castles, Fred Close holds four kings in a peach measuring twelve inches in circumference, and weighing eleven and a half ounces.-Highland Sentinel.

> GENERAL SHERMAN writes to the superintendent of a school for young amateur soldiers in Michigan that a military school is the best possible preparation for a skilled militia or army of volunteers, and is absolutely essential to a government such as ours, which will not maintain a large standing army. He adds: "The ordinary drill 'sets up' the boy, and makes a man a better figure, better physique, and consequently prolonging his life and adding to the measure of his influence as a citizen."

FRUIT culture is making rapid progress in the United States. According to recent official statements, the land appropriated to this branch of industry is 4,500,000 acres. Upon this there flourish 112,000,000 apple trees, 28,000,000 pear trees, 112,270,000 peach trees, and 141,260,000 grape vines. The total value of the fruit crop throughout the United States is set down at \$138,216,-700, an amount equal to half the value of the average wheat crop of the country. Toward that large sum apples are held to contribute \$50,400,000, pears 14,130,000, that mere heredity will not explain it. A needs of the time demand that industrial peaches, \$46,130,000, grapes \$2,118,000, traveler in the New World once said that drawing should everywhere, as has been strawberries \$5,000,000, and other fruit

SATURDAY, SEPTEMBER 14, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY.

THE press of Kansas will confer a favor upon us by publishing the following announcement:

The Fall Term of the Agricultural College began Wednesday, September 4th, and will close Wednesday, December 20th, 1878. Tuition absolutely free.

#### Personal.

In accepting a nomination for Congress, we accepted the obligation to canvass the First District, and will accordingly be absent from the College until November. The several members of the Faculty have kindly volunteered to perform the work usually devolving upon the President; and the Institution is so well manned and organized that it is abundantly able to take care of itself for a while, so far as we are concerned. Until November persons needing to communicate officially can address Prof. M. L. Ward, acting President.

#### Prof. W. L. Hofer.

The following is extracted from a letter recently received from the Rev. N. M Clute, of Charles City, Iowa; and is very complimentary to the ability and reputation of Prof. Hofer, our new music teacher:

"A letter from Prof. W. L. Hofer announces his arrival at your place, and his engagement as teacher of music in the Institution over which you preside. have been favored with Prof. Hofer's acquaintance and friendship for several years past, and it affords me the greatest pleasure to recommend him in every respect. As a teacher of music you will find him more competent and thorough than ninety-nine out of an hundred who profess a knowledge of that science. He is competent in every sense of the word, although his extreme modesty will never permit him to blow his own trumpet. And then, as a strictly conscientions, Christian gentleman, he has n superior.

You may think this high praise, but I know that you will find him better than my poor praise, as you become better acquainted with him."

WE have before us the annual circular of the Junction City Normal School, Prof. H. C. Speer, Principal, the first term of which began Wednesday, September 4th 1878. Prof. Speer says: "The Junction City Normal School is an outgrowth of the organization, in 1874, of a class in the theory and practice of teaching, in connection with the High School, for the benefit of persons desiring to prepare for teaching. With a view to extending the benefits of normal training in this section of the State, the Board of Education has been induced to provide facilities for the organization of an independent normal school, with a distinct and strictly professional course of studies and instruction. Ample room in the commodious High School Building has been set apart for the exclusive use of the Normal School." Prof. Speer is an able and energetic teacher, and will make this new enterprise a success if any one can. Persons desiring full information in regard to the Junction Normal should address H. C. Speer, Principal, Junction City, Kas.

# Instrumental Drawing.

The industrial applications of drawing are mostly made by the use of drawing tools. Watch a cabinet-maker. Does he ever attempt to draw a circle free-hand? He may draw his irregular curves so, but does he ever, if he is the best draughtsman, attempt to draw right angles and straight lines, where exact work is demanded, with-

out the aid of straight-edge and square? From this we can see that proper instruction in practical or industrial drawing should consist in instrumental as well as free-hand drawing. To make our schools practical institutions, we may well demand, then, that compasses, ruler, triangle and bow-pen be introduced into them. And as these instruments are only embodied mathematical principles, we must also get acquainted with these principles. While the great object of free-hand drawing is to train the eye and hand and to cultivate the taste and mind of the pupil, and while these points are of great value, the workman should also know something of the different principles of geometrical construction and orthographical projection, so as to be able to read, if not make for himself, the working drawings which may in after life come to his hands.

It cannot be denied that only very few artisans are able to do this. I venture to say that out of every eight carpenters throughout the country fully seven are unable to figure out the length of a hiprafter from the working plans of a building, i. e., from horizontal and vertical projections of it as they are generally given by the architect. Such a state of things, of course, compels the seven to work under constant supervision and consequently for half wages. Here the schools could help and should help. We must give drawing its proper place in the curriculum of the common schools. We must also balance the exercises properly. Much of the socalled artistic may be left out, and sound bread and butter" drawing substituted in

It is, of course, not the business of the common schools to furnish draughtsmen; the finished draughtsman must be the product of special schools. But common schools can teach enough of the main principles to meet the universal want of artisans. Children of twelve or fourteen years can be made to comprehend and execute all possible kinds of working drawings. I also hold that the peculiar discipline which is derived from instrumental drawing is of the highest importance to the student, as it gives the eye a drill in real form and exact dimensions which cannot well be dispensed with. De Tacye, Director of the Royal Academy of Fine Arts at Louvain, says:

"The elementary study of every kind of drawing must be based on geometrical forms; only we shall see that, in putting it into practice, it is indispensable to pursue it two different ways. By geometrical drawing one arrives at an exact, precise and mathematical representation of the object, taking note of its length, breadth, etc. Thus the mind gets a complete knowledge of its real form, and is enabled to make the most delicate analysis; whilst by drawing from sight one only takes note of the appearance of the object according to the point of view from which one considers it, without being able to arrive at an analysis of its real form. The first way of drawing obtains its results by means of instruments, whilst the second relies substantially on the exercise of the eye and the practice of the hand. I believe, therefore, that a combination of these two methods is an absolute necessity in order to constitute a complete rational system of teaching which satisfies the demands of imagination and reason."-J. D. Walters.

## Students Enrolled Since Sept. 4, 1878.

COUNTY. NAME. Riley. Abbott, Ella Riley. Abbott, Frank Abbott, Harmen Riley. Adams, Emma L. Allen, Chester Riley. Mitchell. Anthony, Mollie Cherokee. Ashmead, George R. Ellsworth. Ayres, Sarah Bates, Charles W. Shawnee. Vermont.

Beacham, Augustine Blain, Arthur T. Browning, Abbie L. Browning, Emma Buchli, Bartholomew Buell, Delight A. Butts, Halleck D. Campbell, Emma Campbell, Ettie A. Campbell, May Carter, John E. Chenoweth, Charles C. Coburn, Ella Coe, Henry F. Coe, Jennie A. Cox, Lizzie R. Dickson, A. F. Dickson, James B. Donaldson, Alvin Donaldson, Flora Donaldson, George Dow, George H. Eckman, Wilmer K. Edmiston, Dora Emrick, Katie Farnsworth, Henry E. Foreman, Albert M. Glossop, Emma Gregg, Frank B. Griffing, William J. Hatch, Linda Hillyer, William J. Himes, Hattie Hosmer, Mina Houston, Hortense Howden, George W. N. Hulett, C. M. Humphreys, George Hunt, Henry L. Hutsell, Sallie Jaquith, Walter W. Jeffrey, William J. Jeffrey, Fletcher Jones, Horace B. Kingsbury, Eddie L. Kinsey, Dora Knipe, George D. Knostman, Emma Leach, Darwin S. Lewis, Issie Lewis, Samuel O. Light, Willis Limbocker, Clyde Limbocker, Clarence Luse, William P. Lynch, Fred C. Lynch, James H. Mails, Mattie Mann, John McBratney, William McGuire, Katie I. McNair, Alice E. McNair, J. L. McNair, S. E. Messenger, Charles Miller, Edgar Millikan, Minnie E. Mills, Hattie L. Moore, Thomas R. Morgan, S. M. Morrow, John N. Myers, Wirt S. Neiman, Charles Noland, Manda Noyes, Amy E. Noyes, Ida L. Outt, J. F. Paine, Edwin C. Parker, Grace Pettit, D. C. Pfoutz, William A. Platt, Henry A. Randel, Alta Randel, Charles F. Randel, Henry A. Records, C. M. Reed, Willie S. Reeve, Mark A. Richards, Bettie Richardson, Noble A. Rollings, W. E. Rose, George E. Rose, Wm. N. Rushmore. H. C. Salter, Lewis A.
Scott, Nannie
Shartell, Cassius M.
Sickels, Maria E. Sigman, George L. Sikes, Wm. H. Sloan, John A. Snow, Cora L. Southwick, Charles A. Spicer, Joseph C. Spooner, Alice G. Stiles, Charles H. Stoner, Fannie A. Strong, Grace R. Talbott, John R.

Marshall. Tarrant, Will S. Riley. Thomen, R. O. Thompson, George F. Riley. Riley. Throckmorton, George Wabaunsee. Travis, Jared M. Riley. Vaught, Cora Vincent, Ella E. Welch, C. R. Jefferson. Riley. Riley. Whaley, Rowena Whaley, Willie E. Riley. Shawnee. Williston, Frank D. Wilson, Elmer E. Cherokee. Saline. Wood, Clarence E. Missouri. Woodburn, William Woods, Albert O. Missouri. Woodworth, J. W. Wright, Robert H. Wyland, T. J. Riley. Johnson. Johnson. Butler. The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the high-Butler. Butler. Riley. est breeding. Address E, M. Shelton, Manhattan, Osborne. Illinois. Pennsylvania. Lincoln.

Riley.

Riley.

Coffey.

Riley.

Riley.

Riley.

Riley.

Republic.

Jefferson.

Chautauqua.

Johnson.

Sumner.

Cherokee.

Cherokee.

Wabaunsee.

Davis.

Riley.

Riley.

Coffey.

Riley.

Riley.

Riley.

Lyon.

Neosho.

Missouri.

Cherokee.

Cherokee.

Nemaha.

Johnson.

Cowley.

Johnson.

Missouri.

Johnson.

Nemaha.

Wabaunsee.

Wabaunsee.

Monigomery.

Davis.

Smith.

Lyon.

Allen.

Riley.

Lyon.

Riley.

Cherokee.

Atchison.

Riley. Nemaha.

Nemaha.

Nemaha.

Riley.

Wilson.

Ottawa.

Cherokee. Cherokee.

Jefferson.

Cherokee.

Montgomery.

Chautauqua.

Montgomery.

Chautauqua.

Wabaunsee.

Atchison.

Clay.

Riley.

Riley.

Lyon,

Clay.

Riley. Atchison.

Pottawatomie.

Chautauqua.

Lyon. Pottawatomie.

Wabaunsee.

Wabaunsee.

Wabaunsee.

Rice.

Pottawatomie.

Pottawatomie

Pottawatomie.

Shawnee.

Mitchell.

Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

Cowley.

Cowley.

Coffey.

Wilson.

Butler.

Riley.

Riley. Riley.

Riley.

Riley.

Ford.

Jewell.

Cherokee.

Nemaha.

Sumner.

Cherokee.

Harvey.

Davis.

chool District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chémical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drillin English, History of English, Structure of English, Study o Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

Habits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

Special for Woman.—Special lectures on Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

ough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer. rather than for the benefit of the astronomer.

Club Rates.—The regular price of the Kansas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to any address for one year the Immeritance. publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the INDUSTRIALIST for \$2.75; or the Farmer and INDUSTRIALIST for \$2.25; or the American Young Folks and the INDUSTRIALIST for \$1.00.

Agricultural College Lands.—These lands are in the market, as provided by law, and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest, payable annually. The lands are all choice selections, and prices range generally from \$5.00 to \$6.25 per acre. Some of the best tracts are appraised at from \$8 to \$10 per acre, and they are well worth the money. These lands are located in Washington, Marshall, Clay, Riley and Dickinson counties. For particulars, maps and descriptions, address L. R. Elliott, Agent, Manhattan, Kas.

Kansan Abroad, By Noble L. Prentis.
In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of Pike's Peak," the interesting address originally delivered under the auspices of the Kansas State delivered under the auspices of the Kansas State Historical Society, and never before printed; and "THE WORLD A SCHOOL," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail. \$1.25. Address George W. Martin, Publisher Topeka, Kansas. Topeka, Kansas.

Printing!—Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST by the Department furnishes advanced students the requisite drill in newspaper work.

SATURDAY, SEPTEMBER 14, 1878.

There are one hundred and thirty-six students enrolled up to date, and still they come.

An article written by one of our students, giving an account of his trip to Wyoming Territory this last summer, will be published next week.

The grain on the College farm is being threshed this week. A number of the students are assisting in the work. We have not heard what the yield is, but presume Prof. Shelton will report that in due time.

Mr. James Maltby and sister of Salina, former students of the College, spent the first of the week with their old friends on the Hill. Mr. Maltby said he must have the INDUSTRIALIST a year and assured us that he was greatly interested in the prosperity of the College.

We received a call yesterday from Thomas Midgley, Minneapolis, another old student of the College. He is out on his wedding tour, and stopped off at Manhattan to see old friends. Thomas is a No. 1 man, has an excellent wife, and will also hereby accept our heartiest congratulations.

The following students have been enrolled since our last issue: Abbie L. Browning and Emma Browning, Riley county; Halleck D. Butts, Jefferson county; Wilmer K. Eckman, Osborne; Hortense Houston, Riley; George D. Rose and Wm. N. Rose, Cherokee; Wm. H. Sikes, Pottawatomie; Cora L. Snow, Riley; R. O. Thomen, Davis; C. R. Welch, Harvey; Frank Williston, Riley; J. W. Woodworth, Cherokee; T. J. Wyland, Jewell.

We were pleased to receive a call on Thursday last from D. P. Leonard, formerly traveling agent for the Western Supply Agency, Topeka, but now with L. D. Dobbs, State agent for Cowperthwait & Co., Educational Publishers, Philadelphia. Mr. Leonard says the books which he sells have been adopted by the greater part of the schools in the eastern portion of the State, and that the schools in the western counties are rapidly falling into

The Nationalist says that over two hundred people from Manhattan attended the temperance camp-meeting last week. It is believed that this meeting will be productive of great good to the State, and that an increased interest has thus teen awakened in the temperance work. The enthusiasm and encouragement which the people received there has gone with them to their homes, and the effects of the meeting will be felt in every community.

Mr. Bennett was very seriously injured on Thursday last. He was on the top of a partition wall, attempting to pull up some lumber by means of a rope, when the rope broke and he fell backwards, lighting on the joists sixteen feet below. The President's buggy was sent for, and Mr. Bennett, bolstered by pillows, was taken down to the Adams House. Upon examination, the doctor found Mr. Bennett's ankles and back to be very badly sprained, but thought that with proper care he would soon be able to at least superintend his work. It was a very close call, and might easily have resulted in instant death.

At the meeting of the Alpha Betas yesterday afternoon, the question as to whether the beauties of nature surpass those of art was debated and decided in the affirmative. The music committee furnished the Society with a fine quartette. It was decided to renew the publication of the Gleaner, and H. F. Coe and Miss Dora Kinsey were eiected editors. After the usual appointments, the following original question was adopted: "Resolved, That woman should be allowed to vote." .As this is a question seldom handled by literary societies, it is expected that an unusually large number of persons from all parts of the country will be present.

Owing to the rush of work necessarily connected with the opening of the term, we had neglected or forgotten to speak of the closing exercises of the Riley County Normal Institute. After the labors of the Institute were finished, the teachers coucluded to have a social. By invitatation we attended it, and certainly never spent an evening in Manhattan more pleasantly. The spacious rooms and halls of the city school building were thrown open to the teachers and their friends; Dr. Lyman's orchestra furnished the best music; Prof. Platt and others favored those present with good singing; and last and best of all came refreshments. Ice cream, cakes, lemonade, and other luxuries were served up in abundance, until all were satisfied. After the tables were deserted, all repaired to the assembly rooms and were entertained by speaches from Rev. Gill, Dr. Lyman, the various professors, and Mr. Billings;

turned a hearty vote of thanks to the officers of the Institute for the labor which had been expended in their behalf; and soon thereafter the company began to separate and return to their homes. In this manner closed one of the best institutes ever held in the State.

The first regular meeting of the Webster Society was held Saturday evening, September 7th, in Telegraph Hall. Society was called to order by President L. A. Salter, Mr. A. Beacham being appointed Secretary pro tem. After the orders of roll-call and prayer, the Society proceeded to the election of officers for the ensuing term, with the following result: For President, John Mann; Vice-President, H. C. Rushmore; Secretary, W. K. Eckman; Treasurer, A. Beacham; Critic, H. C. Rushmore; Librarian, T. R. Moore; Reporter, L. A. Salter; Marshal, S. M. Morgan; and for Board of Directors, Messrs. Todd, Wood, Moore, Harvey and Hulett. The names of Messrs. W. S. Elliott, C. M. Shartell and N. A. Richardson were proposed for membership. The following question was then selected for debate at the next meeting: Resolved, That the establishment and maintenance of any political parties beside the Republican and Democratic, is not for the best interest of our country." Affirmative, Messrs. Beacham, Harvey and Salter; negative, Messrs. Reeve, Todd and Rushmore. The following appointments were then made: Declamation, J. B. Dickson; composition, T. R. Moore; select reading, C. E. Wood; and for editor of the Webster Reporter, A. F. Dickson, the paper to be presented in two weeks. Although the evening was stormy, the attendance was good; and all seemed happy in the thought that the Society was holding its ground, and in a prosperous condition for the coming year.

#### ENTERPRISE ITEMS.

Some of the finest wild plums we have seen are now in the market.

A number of Eastern parties are stopping off here, nearly every day now, to look at the country, with a view of settling.

Manhattan has what promises to be one of the best orchestras in the country. Although organized but a short time, they are making rapid prog-

A. A. had another runaway Monday evening. He and his wife were out riding when the horse took fright at a baby carriage, and turning around short broke the shafts off, besides smashing the buggy somewhat. We'd sell that horse. A steed that can't stand the sight of babies and baby car-riages isn't the kind of a horse for young married people to have around.

The greatest change that has been wrought in this vicinity within the past two years, is on College Hill. So great has been the improvement that is almost impossible to recognize those beautiful, shady grounds around the College buildings as the same spot that was so bare and bleak, but a few months ago. Hard work, with taste and skill, has converted those grounds into a veritable "Gar-

## NATIONALIST ITEMS.

The public schools commence next Monday.

A new fence has been erected around the new school-house square.

College Hill is having the chills. Capt. Todd is the last case we have heard of.

The Masons of Manhattan have contributed \$50

toward the relief of the yellow fever sufferers. The ladies of the Methodist Episcopal Church are preparing to newly carpet the church and fur-

The Nationals of this district have nominated Rev. E. Gale, of Manha lan, for Congress. A good

man, with fair ability. Maj. Adams says the display of Short-horn cattle, well-bred horses, swine and poultry, at our fair,

will be unprecedented. Telephones are plenty in town. W. C. Johnston and house, post-office and depot, and several

other places are in connection. The regular passenger trains are as heavily loaded as they were in the spring, showing that

the fall immigration has set in. Mr. Blood has one of the largest apples we ever saw. It was raised by E. C. Persons, measured 153/4

inches in circumference, and weighs 13/4 pounds. The rains during the past week have put the ground in splendid condition for small grain, and the farmers are taking advantage of the fact gen-

If there is a vacant house in town, we do not know where it is located. More dwellings are needed very much—especially in the northwest part of town. Now is the time to build.

The officers of the Fair Association think that the extensive drains made and roads thrown up on the fair ground will certainly prevent any serious inconvenience from such rains as we have had last season. They expect an attendance of from 6,000 to 10,000 people on Thursday and Friday of the fair, if the weather is favorable.

## DIRECTIONS TO APPLICANTS.

## TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of the county superintendant. The teachers re- each term, or as soon thereafter as possible.

Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in

the College wholly depends upon his own action.
The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

#### RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath. EXPENSES.

There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Eurnishing an absolutely free education is as

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be observed in the control of the con tained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

## LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.—Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is

purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. — When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and not educational, but simply for its own pront, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its apprinted to the contract of the contract o own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We one for his own consideration and decision. can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

## RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

# 3. Penalty: "Leave!"

## PUBLICATIONS.

the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Department, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Education. Price, 75 cents a year. Address A. A. Stewart Manhattan art, Manhattan.

#### CALENDAR.

Full Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th. TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after charal for arrealment. after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Poyntz Avenue, Manhattan. 19-3m Poyntz Avenue, Manhattan.

press-Making and Millinery.—Daily instruction and drill in hand and machine sewing; cutting, fitting and making dresses; and all branches of millinery, by a practical teacher.

ducational Calendar. - A wide-awake spicy, newsy, Kansas paper for the Officers, Teachers and Patrons of Kansas schools. Published monthly for only twenty-five cents a year. Send for sample copy, and say that you saw this advertisement in the Industrialist. Geo. W. Martin, Topeka.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

anhattan Bank.—E. B. Purceil, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

Kansas Text-Book, for teachers and A students. ELEMENTS OF AGRICULTURAL GEOLOGY, for the Schools of Kansas, by *Prof. Wm. K. Kedzie, M. S.*, of the Kansas State Agricultural

"It presents the subject in simple, untechnical language, easily comprehended by the pupils for whom it is intended. It is thoroughly practical in its teachings, and, at the same time, from a scientific point of view, it is rigidly exact."

In two parts · Part First - Elementary Geology Part Second - Origin and Formation of Soils.

Wholesale price, \$4.80 per dozen; Van Antwerp, Bragg & Co., Cincinnati and New York. Retail price, 45 cents; for sale by S. M. Fox, Manhattan, Kansas.

The Kansas Publishing House.—A Kansas institution. Celebrated for Kansas productions. The only Kansas House to secure a Centennial award for quality of work. Kansas work, by Kansas mechanics, at this Kansas establishment. Pronounced "faultless."—Felestablishment. Pronounced "faultless."—Felter's series of School Records, made to comply with Kansas laws by a Kansas author and Kansas publisher. The best School Officers' Records in the market.— Felter's Elements of Book-keeping. The first Kansas text-book by a Kansas author and a Kansas publisher. Being rapidly adopted by the schools.— The Annals of Kansas, a marvellous history of Kansas, written and printed in Kansas.— The Educational Calendar, a beautiful monthly publication for the Officers, Teachers and Patrons of Kansas schools, for twenty-five cents per annum.—The best Railroad, County, Bank and Mercantile Blank Book work to be had anywhere, all done by Kansas mechanics. Our ambition is to build an establishment for Kansas equal to the best in America.

Address. GEO. W. MARTIN, Topeka, Kas.

The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixtyfour pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case,

Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

popular taste. Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and useful-The "Hand-Book," published in 1874, containing a full discussion of the educational question and manner possible.

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W. L. HOFER, Teacher of Instrumental Music.

#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agriculness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will appear in form ble education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an educa-tion; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

	FARMER'S	COURSE.	
FOURTH YE'	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall	. Spring. Fall.	Spring. Fall.	Spring. Fall.
900 4100		50,400,	1004.00
Geology, Mineralogy. Polit, Economy, Practical Law. Zoology. Agricul Chemistry, Meteorology Logic.	Rotany, Entomology. Inorganic Chemistry. Practical Geometry. Horticul., Landscape Gardening. Organic, Analytical Chemistry. Practical Surveying.	Physiology. Rhetoric. Algebra. Practical Agricul. (elementary). Physics. Industrial Drawing.	Drill in English. Drill in Arithmetic. Industrial Drawing. English Structure. Adv'd Arithmetic, Book-keeping. U.S. History, Industrial Drawing

## WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

## WOMAN'S COURSE.

	M. OTHERTA D	COCIONI	
FOURTH YE'R		SEC'ND YE'R	
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Farm Economy, Special Hygiene 2. Geology, Mineralogy. 3. Polit'l Economy, Practical Law 4. Zoology. 5. Phys'c'l Geography, Meteorology 6. Logic.	1. Botany, Entomology. 2. Inorganic Chemistry. 3. Industrial Drawing. 4. Horticul., Landscape Gardening. 5. Organic, Household Chemistry. 6. Household Economy.	1. Physiology. 2. Rhetoric. 3. Algebra. 4. English Literature. 5. Physics. 6. Industrial Drawing.	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arith., Book-keeping. 6. U.S. History, Industrial Drawing

# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has heen found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural

knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS

Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

FOR FEMALE STUDENTS. Dress-making. Printing.
Telegraphy.
Scroll-sawing.
Carving.
Engraving. Photography. Instrumental Music.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students raking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music, where the usual fee is assessed for the use of pianos or organs. Male students taking either Printing or Telegraphy are charged \$1 per month Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

## DEPARTMENTS OF INSTRUCTION.

# DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE. Second Year: — General principles of breeding; history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; act on of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage; how to lay out a system of drains; house drain-

age; sewerage.

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; genera-advantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; ing; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY.

Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent t eatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

# DEPARTMENT OF BOTANY AN PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and systematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practi-cal drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management commercial and f ing; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally avail-able in laying out and improvement of farms and the homes of the people. These lectures are acthe homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

#### CHEMICAL DEPARTMENT. PHYSICS

This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

Ganot.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their com-pounds, are next considered in succession as to their history, properties, manufacture, and espe-cially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboratory practice.

#### CHEMICAL ANALYSIS.

In this course each student is furnished his In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual. Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY.

Embracing the composition of the atmosphere; atmospheric pressure; temperature and humidity laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY

This includes the study of the laws of crystallography, with the properties, forms and uses of the principal minerals of the United States. Blowpirtherpar influences of the Officer States. Blow-pipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composi-tion of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of fruits, etc.

SPECIAL COURSES

Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE.

Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful intelligent in handling the machinery called lan-guage, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the students

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants. Letters: Form; power; rules for spelling, drill.
Words: Signification, properties, modifications,
variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of com-positions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and penman-

Text-books: Webster's Academic Dictionary; Lee

& Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter the printing class, the printing-office being the work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS.—The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the

Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech. Stems: Their derivation; their offices and prop-rties; their relation to other parts of words.

Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems. Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of

the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examina-

tion of selected matter, but original composition. ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instru-ments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given operations are performed, but because they can nei-ther add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental conventions and those of profit and fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehenlation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception is quite another and more difficult exception, is quite another and more difficult ARITHMETIC AND BOOK-KEEPING

Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

Algebra is included in the course as a preparation for the study of Surveying. DRAWING.

The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or figures; and a woman in cutting a pattern, or, deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Depart-

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student belief in the orbitish, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with many proper in the state of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical principles and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to As snown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

Gardening is included in Practical Horticulture. See heading, "Landscape Gardening."

Household Chemistry. See heading, "Household Chemistry."

hold Chemistry."

HOUSEHOLD ECONOMY
Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will du-

ly discover, that systematic knowledge of how cooking ought to be done is luminously difference from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlast-ingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil as it is to give laboratory and pleasure to the pupil, as it is to give laboratory practice in chemistry — and no more expensive.

# INDUSTRIALIST

Published every Saturday by the PRINTING DEPARTMENT OF THE KANSAS STATE AGRICULTURAL COLLEGE

TERMS OF SUBSCRIPTION, 75 cents per year, post age prepaid. Ten cents per month, postage pre-paid. Payment absolutely in advance! Paper expiration of subscription. A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and care-fully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations as shown by the last was follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as

10110WS:	
Normal education:	
Teachers	1.13= 1.13
Professional education:	
Ministers	0.43
Lawyers	0.55
Doctors	0.73 = 1.71
Industrial education:	
In agriculture	59.13
In manufacturing and mechanical	14.63
In personal service	13.89
In trade and transportation	9.51 = 97.16
	100.00

AGRICULTURAL COLLEGE. Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

LOCATION. It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY. The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology. Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic It has an equally practical and effective Logic. It has an equally practical and effective course for the education of woman as a woman instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving

#### Wyoming.

Editor Industrialist: - Early last spring I received directions from my brother to go to the fossil fields of southern Wyoming; and so on the first of April I stepped aboard the train for Denver. After rather a monotonous ride over the dreary plains, where I had fossilized all the previous summer, I reached Denver late in the evening of the following day. The late arrival of the K. P. trains renders it necessary to remain over night in Denver, no matter on which route one's going. At eight o'clock, however, the next morning, I was aboard the Denver Pacific cars for Cheyenne, which we reached about twelve o'clock. The time allowed for meals gave me a few minutes to look at the city; but, like Denver, it too seems straggling and not very picturesque. Soon we were steaming westward, climbing to Sherman, the highest point of the railroad, and thence on to Laramie, a rather pretty villege, somewhat larger than Manhattan, standing solitary and alone on the cold, inhospitable Laramie Plains. At half-past eight we reached Como, my destination, one hundred and fifty-six miles west of Cheyenne. It was indeed a desolate-looking country when first I saw it,- rough, broken hills, enlivened with nothing more cheering than the everlasting, odoriferous, scraggly sage bushes and grease wood, with here and there a deep drift of snow. Como, like nearly all the railroad stations, consists only of depot, section house and water tank. Lake Como, a beautiful sheet of alkaline water nearly a mile long, lies near by, fed by the springs which supply the water tank, but without any outlet. These springs are not the least interesting feature of the locality. One or two acres are covered here and there with boiling, bubbling, caldron-like pools, some of them ten or twelve feet in diameter, nearly filled with boiling quicksand almost unfathomable; and the quantities of pure, cold water poured out would almost make a small river, most of it flowing into Rock Creek, near by. As soon as the lake was thawed out, near the first of May, the millions of ducks and water game birds make the place a favorite one for sportsmen. Fancy ye Nimrods who are content to waste a day for a half-dozen birds, sitting on the banks of a lake with a hundred loaded cartridges, and shooting till one is tired and counting your game by the scores. My brother identified fourteen species of ducks in June, including the rare and most beautiful Cinnamon Teal; and his report upon these and the other birds of the region is now being printed.

Not only in ducks is the region the paradise of sportsmen; but more than once have I seen and eaten of elk, mule deer, antelope and mountain sheep, with rarely a grizzly bear for variety.

pleasantest kind. It snows more or less up to the latter part of May, and again be- hollow bones just like birds. More than gins in September, with frosts usually every forty tons of these fossils have been collectmonth in the year. The winds from the ed in Colorado and Wyoming.

west blow with the utmost fierceness from November till June. As an agricultural region it is almost utterly useless; the small grains and potatoes, it is said, can be grown with profit in seasons when there is sufficient rainfall. Singularly, notwithstanding the extreme vigor of the climate, stock raising is a profitable pursuit. For beauty of scenery I certainly never would advise any one to travel on the Union Pacific Railroad, for there is neither grandeur or beauty any where except, perhaps, in the vicinity of Sherman.

The fossils upon which our party were at work were mostly confined to the high ridge a mile south of the station. These will perhaps interest the readers of the Indus-TRIALIST more than any thing else. The formation is the Jurassic, and consists there mostly of heavy blue clays and sandstone. The Jurassic is near the middle of the Mesozoic age, and probably numbers its years by something near ten or twelve millions. This is called the Reptile age, and one would surely think so to see the wonderful monsters that are resurrected. They nearly all belong to an order of extinct animals called Dinosaurs. More than two hundred fossil species have been described in the world, and all confined to the Mesozoic age. They were animals midway between birds and reptiles, but rather more like alligators. Some were carnivorous and some herbivorous, and the young were hatched from eggs. Most of them were shaped like kangaroos with the fore feet small and the hind feet large upon which they walked, and with an enormous tail for a prop. Singularly, the largest and the smallest known are from the Jurassic formation in Colorado and at Como; and I fear most of my readers will hardly beleive me when I speak of the size. The very largest and the longest animal, except the whale, that is known, must have measured one hundred feet in length, and stood upon its hind legs over fifty feet high. If a man had been living when these terrible monsters were upon the earth, he could not reach above one's knee. The longest thigh bone that I saw did not measure over six feet, but my brother told me of one that he helped dig out near Denver that was ninetyeight inches long and weighed over five hundred pounds; and I believe Prof. Cope has gotten one from Canyon City in which the thigh bone would be twelve feet in length. These very large ones were herbivorous, and very probably lived in water near the shore. There were others, however, that were nearly as large that were carnivorous, and most fearful things they must have been. They had great spurs on the back part of the legs, like a rooster; one of these spur bones was nearly two feet long! There were a great many different kinds of these animals at Como, of various sizes; The climate in this region is not of the some no larger than an ox and others smaller than a cat. These little fellows had very

With these fossils were a great many crocodiles, much different from any living, and turtles. All the bones must have been deposited in watering places, where the animals probably often got mired; and for that reason there were very few fishes. One specimen of a pterodactyl we got. We used to get them most abundantly in the Kansas chalk last year. These were large flying reptiles, with wings something like a bat, and the largest when living would have been nearly thirty feet in expanse of wings. We got one specimen of a mammal jaw of an animal something like an opossum, but much smaller. The pterodactyl and mammal were the first ever found in the Jurassic in America.

Altogether, my opinion of Wyoming is a very poor one. Too bleak, cold and dry for farming, its whole resources must be confined to mining and stock-raising, and or the latter I would prefer the Kansas FRANK H. WILLISTON. plains.

GLADSTONE says the census and statistics f 1880 will show the United States to be ne of the wealthiest nations of the earth.

THE cotton crop for 1878 is estimated at ,000,000 bales, or 2,000,000,000 pounds largest yield ever had in the United States.

WE have here a State as large as all New England with a couple of small States thrown in, embracing an area of 81,318 quare miles, or more than 52,000,000 acres of land. We can support a population of ten millions without crowding; or if we should cultivate the soil with the same economy they do in Europe or China, we could support in Kansas more people than there are in the United States to-day. But of our 52,000,000 of acres, only about 5,000,-000 are yet under cultivation. We have in fact hardly begun to develope the resources of our State.

THE public schools of Boston opened last Monday, and a new programme of studies went into effect. Henceforth in the primary schools instruction is to be almost entirely oral. Pupils will learn from objects and from the teacher, instead of from books. An exercise known as "Language" will consist of oral lessons upon pictures, plants, animals and what else the teacher may think useful in leading scholars to express what they know in words. Oral instruction will also be given upon form, color, measures, animals grouped by habits, vegetables, minerals, hygiene and the human body. The metric system will be taught from the metric apparatus. No spelling books will be used at all, the reading books taking their place. In the grammar grade, the study of grammar, as generally studied, has been abolished with the spelling book. In the stead of parsing and other technical work, lessons will be given in composition, in the use of capitals, in letter writing, and in the arrangement of sentences. Much of the time formerly devoted to geography will be given to natural philosophy and physiology. Oral instruction will be an important feature of all classes, and in the lowest two it will predominate. In the lower classes the subject for oral instruction will be natural history, plants from May to November, animals from November to May, trades, occupations, common phenomena, stories, anecdotes, mythology, metals and minerals. In the upper classes, physiology, life in the middle ages, biographical and historical sketches, and experiments in physics.—N. Y. Tribune.

SATURDAY, SEPTEMBER 21, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

#### Alfalfa Again.

OLNEY, Kas., July 20, 1878. Prof. E. M. Shelton,

DEAR SIR: — Will you please give in the Industrialist a short article on alfalfa. Please state the time of year it should be sown. I have heard it said that when once thoroughly rooted it would not be killed by ordinary plowing. Is this true? By

answering you will greatly oblige

The above communication reached Manhattan during our absence in the East, and only came to light a few days ago.

A READER.

During the past four years we have written a half dozen, more or less, of articles about alfalfa, for the Industrialist; and, beyond stating that the favorable view taken of the plant then has been more than confirmed by our experience upon the College farm, we have little that is new to say upon the subject. Nevertheless, for the benefit of our correspondent and other new subscribers, we will answer his questions somewhat in detail, even though it be a "twice-told tale."

In the first place, no other than old, clean, well-prepared and very rich soil should be used for alfalfa; and if to these a permeable clay or gravelly subsoil can be added, so much the better. But we are satisfied, after much experience, that failure will follow every attempt to grow alfalfa upon raw, poor or very foul land. Having selected the land, it should be thoroughly plowed and harrowed, and fitted in all respects as if it was designed for small grains.

Another common and fatal mistake is made in the cultivation of this plant by using too little seed. It should be remembered that alfalfa "stools" but little, and it never forms a sod as Kentucky blue-grass and timothy do. Sow in the spring at about the time oats and barley are usually sown, and do not use less than twenty pounds per acre.

During the first season our correspondent will be much discouraged if not disgusted with his alfalfa. It then makes a slow and somewhat feeble growth; and, if the land is foul, the weeds will almost completely obscure the alfalfa, and they may do it a permanent injury. It is on account of its feeble early growth that the custom prevails in Europe of sowing alfalfa in drills, and then carefully hoeing it during the first season. But after this first season, alfalfa is quite able to take care of itself; it then grows with surprising vigor and luxuriance, and it will "smother" any weed or civilized plant that we remember to have ever seen.

We have had little experience in attempting to kill out alfalfa, but are inclined to think that our correspondent has been misinformed. We do know that where winrows of hay are left upon the alfalfa it kills out beneath them in a very short time. Last spring we plowed up about a rod square of alfalfa to complete a lawn; and although an occasional plant may now be seen, we attribute this to the imperfect plowing necessarily done upon such a small piece of land.

About six weeks ago we finished cutting the third heavy crop of alfalfa hay, taken from the same piece of land the present season, and at this writing there is a fourth crop—a full one and one-half tons of hay per acre—upon the same land.—Prof. Shelton.

#### American Ivy. (Ampelopsis quinquefolia.)

This is the choicest of all American creepers. It clothes the majestic elms and oaks that nature has planted in our forests, climbing to their very topmost branches. The old forlorn-looking and decaying trunks of trees whose beauty and stateliness have passed away, are most convenient supports for the slender branches of the ampelopsis. They creep along their sides and clothe these unsightly objects with glowing verdure, making them even in their dotage, it may be, more pleasing objects than when in the full vigor of their growth.

Along the by-ways, in the fence-corners and neglected spots, where there is something to which it may cling, the American ivy often makes its home; and, creeping along over the rubbish, mounts some old snag or fence-stake, and when there is no longer room to grow upward, crowns its summit and hangs in graceful sprays and festoons, waving in the air.

There is a picture of art and nature combined, which I see plainly, although it has been years since I saw the original. When I lived with my venerable and distinguished preceptor in pomology, Dr. Jno. A. Warder, of North Bend, Ohio, there was, in a pasture of his, the stone walls of an old distilery. His farm is a part of the old estate of President Harrison, and these crumbling walls a relic of the good (?) "old rye." Would to God that many more of these manufactories of liquid ruin were in the same dilapidated state. But a friendly vine of the ampelopsis had planted its roots amidst these ruins. From one main stem its branches had sought and reached the topmost stones, skirted its sides, and fitted themselves to the various broken arches and pillars, and covered withal the debris that lay upon the ground. Kind, healing nature had thrown over the sad remains of a sadder object the green mantle of charity. The picture was at once cheerful and sad,cheerful in its beauty, sad in its recollections. Often, when passing that way on Sunday afternoons, returning from church, have I sat and rested and drank in the beauty before me. Some ignorant person at one time had thought to do a kindness by killing the Doctor's poison vine, cutting this magnificent American ivy in two close to its base. But it grew again and repaired the breach.

It is not hard to tell the difference between the true poison ivy (Rhus radicans) and this ampelopsis. The ampelopsis has five divisions of the leaf on one stalk, or five parts to the compound leaf, while the poison vine has but three. The leaves are different in shape, too; and the poison vine has branches projecting horizontally from the main vine, while the other has not.

Adams, Emma L Allen, Chester Anthony, Mollie Ashmead, George Ayres, Sarah Bates, Charles W Beacham, Augus Blain, Arthur T. Breakbill, John Browning, Abbie Browning, Emm

For covering buildings there is no creeper in America that can equal the Ampelopsis quinquefolia. The great trouble with it is that it is a native in almost all parts of the country. If it was from Japan or some other distant clime, it might attain to the humble place it seeks to fill. But it grows at our feet and begs for some support, - some bare wall, some unsightly building,-that it may stretch its arms, unfold its shining garments, and fulfill its loving mission to the world's enjoyment. You who have great blank walls to your dwellings, your churches, your school-houses, go to the nearest woods this coming autumn or spring and transplant some of these vines. They are in many cases far better than those you will get at a nursery, for there are two kinds. Although they look nearly alike, yet one has ærial roots along its whole length, and the other only holds by its ten- Gregg, Frank B.

drils, which grow only at the joints opposite the leaves. Get those that have five leaves and plenty of these little ærial roots, and you will be right.

Any who have been so fortunate as to see the Presbyterian church at Junction City, Kansas, will know what an adornment is this creeper. The stained glass windows and frescoed inner walls are but mild in their beauty when compared to the living green that decks the exterior. It has crept in at the windows, and stretched its delicate fingers along the casings and the walls. It puts to shame the pencilings of the painter's brush.

When autumn comes, these green leaves will change to purple and scarlet and crimson, in all their mingled and varied tints and shades, crowning the season in richer colors as does the sun finish his day with mellow light and glory that the noontide knows not. How suggestive the clinging tendency of the creeper, as it holds firmly to the tall and stable oak, of our dependence upon a higher and stronger than we. May our last days be softened and brightened in their coloring, even as the ivy leaves, and fade into a future whose spring shall be eternal.—Prof. Van Deman.

BEFORE us lay the catalogues of all the colleges of the State. Each has its course or courses of instruction, which, if carried fully out, and students are diligent, would greatly help to prepare youth for active life; but none of them, it seems to the Localist, offers so many advantages within a given time as that of the State Agricultural College. There the student is compelled to practice and test what he learns, and, in fact, learns most by practice and becomes assured of his knowledge only by thorough personal tests; consequently he goes forth with a fair outfit of doctrines and principles, and, what is best of all, prepared to investigate for himself as a practical man or woman throughout life. Those, therefore, who throughout life. want to become active in an active world, should avail themselves of its privileges and finish its whole course of studies. More might well be added to the course: but if what is prescribed be fully mastered that more can easily be acquired by the progressive student. It is the farmer's and mechanic's school; let their sons and daughters fill its halls and be prepared to win in the conflict of practical life.—Clifton

# Students Enrolled Since Sept. 4, 1878.

COUNTY. NAME. Riley. Abbott, Ella Riley. Abbott, Frank Riley. Abbott, Harmen Riley. Adams, Emma L. Mitchell. Allen, Chester Cherokee. Ellsworth. Ayres, Sarah Shawnee. Vermont. Bates, Charles W Marshall. Beacham, Augustine Blain, Arthur T. Breakbill, John Riley. Riley. Browning, Abbie L. Riley. Riley. Browning, Emma Buchli, Bartholomew Wabaunsee. Riley. Buell, Delight A. Butts, Halleck D. Jefferson. Riley. Campbell, Emma Campbell, Ettie A. Riley. Campbell, May Riley. Shawnee. Carter, John E. Chenoweth, Charles C. Cherokee. Saline. Coburn, Ella Missouri. Coe, Henry F. Missouri. Coe, Jennie A. Riley. Cox, Lizzie R. Johnson. Dickson, A. F. Johnson. Dickson, James B. Butler. Donaldson, Alvin Butler. Donaldson, Flora Donaldson, George Butler. Riley. Dow, George H. Eckman, Wilmer K. Osborne. Illinois. Edmiston, Dora Pennsylvania. Emrick, Katie Lincoln. Farnsworth, Henry E. Foreman, Albert M. Riley. Riley. New York. Glossop, Emma Goin, Edgar L. Coffey.

Griffing, William J. Republic. Hatch, Linda Jefferson. Hillyer, William J. Riley. Himes, Hattie Hosmer, Mina Riley. Riley. Houston, Hortense Howden, George W. N. Chautauqua. Hulett, C. M. Johnson. Sumner. Humphreys, George Hunt, Henry L. Cherokee. Cherokee. Hutsell, Sallie Jaquith, Walter W. Davis. Jeffrey, William J. Riley. Jeffrey, Fletcher Riley. Jewell, Fred Butler. Wabaunsee. Jones, Horace B. Coffey. Kingsbury, Eddie L. Kinsey, Dora Shawnee. Knipe, George D. Riley. Riley. Knostman, Emma Mitchell. Leach, Darwin S. Lewis, Issie Riley. Lewis, Samuel O. Light, Willis Lyon. Neosho. Pottawatomie. Limbocker, Clyde Limbocker, Clarence Pottawatomie. Luse, William P. Missouri. Cherokee. Lynch, Fred C. Lynch, James H. Cherokee. Mails, Mattie Pottawatomie. Rice. Mann, John McBratney, William McGuire, Katie I. Nemaha. Johnson. McNair, Alice E. Wabaunsee. Wabaunsee. McNair, J. L. McNair, S. E. Wabaunsee. Cowley. Messenger, Charles Davis. Miller, Edgar Johnson. Millikan, Minnie E. Missouri. Mills, Hattie L. Smith. Moore, Thomas R. Lyon. Morgan, S. M. Morrow, John N. Myers, Wirt S. Johnson. Allen. Nemaha. Neiman, Charles Riley. Noland, Manda Wabaunsee. Noyes, Amy E. Wabaunsee. Noyes, Ida L. Outt, J. F. Montgomery. Lyon. Paine, Edwin C. Parker, Grace Riley. Cherokee. Pettit, D. C. Atchison. Pfoutz, William A. Platt, Henry A. Riley. Nemaha. Randel, Alta Nemaha. Randel, Charles F. Nemaha. Randel, Henry A. Records, C. M. Chautauqua. Reed, Willie S. Riley. Lyon. Reeve, Mark A. Pottawatomie. Richards, Bettie Wilson. Richardson, Noble A. Rollings, W. E. Ottawa. Rose, George E. Cherokee. Rose, Wm. N. Cherokee. Rushmore. H. C. Jefferson. Montgomery. Salter, Lewis A. Scott, Nannie Cherokee. Chautauqua. Shartell, Cassius M. Sickels, Maria E. Montgomery. Sigman, George L. Sikes, Wm. H. Chautauqua. Pottawatomie. Sloan, John A. Clay. Riley. Snow, Cora L. Riley. Southwick, Charles A. Spicer, Joseph C. Clay. Spooner, Alice G. Stiles, Charles H. Wabaunsee. Atchison. Stoner, Fannie A. Strong, Grace R. Riley. Atchison. Talbott, John R. Tarrant, Will S. Cowley. Thomen, R. O. Davis. Cowley. Thompson, George F. Throckmorton, George Coffey. Wilson. Travis, Jared M. Butler. Vaught, Cora Vincent, Ella E. Riley. Cherokee. Ward, J. W. Welch, C. R. Harvey. Riley. Whaley, Rowena Whaley, Willie E. Riley. Williston, Frank D. Riley. Wilson, Elmer E. Cherokee. Wood, Clarence E. Riley. Woodburn, William Nemaha. Woods, Albert O. Sumner. Cherokee. Woodworth, J. W. Wright, Robert H. Wyland, T. J. Ford. Jewell.

Bookseller and Stationer.—S. M. For dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Poyntz Avenue, Manhattan. 19-3m

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the highest breeding. Address E, M. Shelton, Manhattan, Kansas. 3-47-tf

SATURDAY, SEPTEMBER 21, 1878.

Read the changes in the Kansas Pacific timetable. Four passenger trains a day, now.

Prof. Failyer will have charge of Prof. Van-Deman's classes during his absence next week.

At the close of the second week of the term, Fire are one hundred and forty students enrolled.

Stewart's new horse don't run away, and the usual chapter of accidents does not therefore ap-

The Hays City Sentinel says that John A. Anderson and Noble L. Prentis are the two best-looking men in the State.

The College farm will have some very fine Berkshire and Essex pigs for sale in a few weeks. Those desiring first choice should apply immedi-

The College library is open every day at the fifth hour, from 12:00 to 12:50. Students desiring books can obtain them by applying to Prof. Ward at that hour of the day.

Below is a list of the new students enrolled since our last issue: John Breakbill, Riley county; Edgar L. Goin, New York; Fred Jewell, Butler; J. W. Ward, Cherokee.

Through the carelessness of one of the members of the printing class, the report of the last meeting of the Webster Society has been lost, and so its proceedings do not appear.

Mr. Bennett, who was injured by a fall from the new building last week, is rapidly improving. He was around the building again Tuesday, and will be able to resume work in a few days, if he has no relapse,

President Anderson started on his canvassing tour through the First District last Thursday. The first gun was fired at Cawker City last night. We shall miss the President's familiar footsteps and jolly good nature.

There is in the College nursery a fine lot of pear trees that will be sold this fall and next spring. Any who may want such trees, should address Prof. H. E. VanDeman, Sup't Horticultural Department, Manhattan, Kas.

Will Sternberg, of Ellsworth, dropped in upon us unexpectedly yesterday morning. He had been "doing" the Exposition at Kansas City. Will's business tact, reliability and perseverance have won him an enviable position on the Kansas

We neglected last week to notice the accident which befell Mr. Mann. When down town one evening, he attempted to jump from the buggy to the sidewalk, but slipping sprained his ankle very badly, and has been laid up all the week. He is now able to be around on crutches, and will soon be in his classes.

A letter from Albert Sternberg, a former College student, informs us that he has been ordered from Cheyenne Wells to Kit Carson. He sends his regards to all old students, and gives the following as an item of news: "A band of Indians ran some immigrants into Sheridan last night (Sept. 13th). They had to leave their wagons and come in on horseback. One company of Infantry and another of Cavalry started after them early this morning

The class in Botany is taking a deep interest in the work before them. It is not only a satisfaction to be able to describe the parts of a tree or plant, but sometimes very useful. What is aimed to be taught in this class is something that the students can carry through life with them. What is learned from the book and teacher is only the foundation of a knowledge that may be gained by every-day study in the great, open book of nature.

Prof. VanDeman took the train for his home in Geneva, Allen county, to-day. He will be absent for a week, attending the Neosho Valley District Fair, at Neosho Falls. The Professor is superintendent of the pomological department of the Fair, and President of the South-Eastern Kansas Horticultural Society, which will have an exhibittion of fruit in connection with the Exposition. Sorry the Professor cannot be present at the Riley County Fair, but suppose home enterprises have first claim upon him.

The Manhattan Fair comes off next week. Attensive preparations are being made, and it is confidently believed that the Fair this year will be the best ever held in Riley county. The accommodations usually provided have already proved in-sufficient, and additional provision is being made for exhibitors. If the elements can only be per-suaded to look favorably upon the enterprise, we shall certainly have one of the best Fairs in the State. It is our purpose to give as full a report of the proceedings as our limited space will permit. the proceedings as our limited space will permit.

Again A. A Stewart has been made happy. His father, mother and brother, from Missouri, have been visiting him. They reached Manhattan on Friday night, the 13th, and remained until last Wednesday, when they departed for Lincoln county, to visit other friends. The death of Mr. Stewart's brother, noticed some weeks ago, so disarranged plans and destroyed pleasure at home, that the family thought a two months' tour through Kansas, visiting relatives, might prove beneficial. They expect to reach home some time in October.

Prof. Failyer has handed us the following summary of the meteorological record at this station, for the week ending Thursday, Sept. 19th:

101 the week chang -	
Average height of Barometer	28.72
Average temperature	700
Maximum temperature	880
Minimum temperature	410
Rainfall in inches	.30
Prevailing winds from the south.	
Prevailing winds from the south.	

We shall renew the publication of our regular meteorological reports next week. Persons desiring to know something of the climate of Kansas, will find reliable information in these weekly

We chronicle another fearful wind and rain storm. The weather was threatening all day Thursday, and in the night it culminated in a big "blow out" and some rain. The roof was lifted from the President's stable and carried up to and through the tops of the cottonwood trees near his house, tearing off many of the limbs. Another chimney was blown off the mechanical building, and several scuttle-lids were torn away. We presume more serious damage has been done in other localities; but if 'Manhattan gets through the year without a tornado similar to those which have visited nearly all parts of the country, she may consider herself fortunate.

The Fifth Annual Premium List of the Neosho Valley District Fair is the neatest and most complete thing of the kind that has come to our table this year. We refer particularly to the printer's work upon it, and only wonder that no imprint appears; for the office that turns out such jobs cannot afford to lose the benefits accruing from so substantial a testimonial of its ability to do good work. The advertisements are tastefully displayed and neatly arranged; there is a uniformity and regularity about the list of premiums, instructions, etc., which delight the careful printer's eye; and the pamphlet, in its general make-up, is of a superior character. There is no gilt edge nor red, white and blue about it; but as a specimen of plain, durable work it takes the premium, and the office that got it out ought to be proud enough of it to put on an imprint. Where does the credit

## ENTERPRISE ITEMS.

Several hunting parties went out on the trail this last week. Twenty-four birds are the highest haul reported.

In a back yard on Second street can be seen a plum tree in full bloom, that has already borne one large crop of fruit this season.

Miss Esther Higinbotham and Miss Etta Higinbotham and Miss Lillie Higinbotham started for Bethany College last Wednesday morning.

A neat fence has been built around the school grounds, and the old white school building moved outside of the grounds. Manhattan is proud of

One section of machinery and implement hall, 100 feet long, is rapidly approaching completion. It is thought that another section and probably two more will be needed to contain the display of machinery and agricultural implements that will be made by our enterprising merchants.

## NATIONALIST ITEMS.

Seven cars of stock were shipped from here last Sunday afternoon.

Reuben Lofinck has been clerking for A. J. Le-

gore a few weeks. Reub is determined to make his mark in the world. There has been a blockade of freight on the

railroads, and consequently the seats for the new school-house have not all arrived. There will be a teacher's examination in the

new school building in Manhattan, on Saturday, Sept. 28th, commencing at eight o'clock A. M. are plenty of good homes where good girls would be gladly received for the winter, and well paid for their labor. Good help for families is hard to find. There

Mr. M. A. Garrett's family have moved into their large stone house on the corner of Second and Osage Streets. Mrs. G. is willing to accommodate a number of students with board, and as she is a most excellent lady we can recommend her house to those who wish their children to board where they will have the advantage of the best of

## DIRECTIONS TO APPLICANTS.

home influences.

## TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the

they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as posssble.

GRADES Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in

the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed number of recitations; and no one will be permitted to have less than one industrial and three literary recitations. recitations.

RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

#### EXPENSES

There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students and well as the education of female students and well as the education of female students. the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and

the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per

tained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term. No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men renting a house, the average cost four young men, renting a house, the average cost to each for the term was \$1.11 per week.

## LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.—Manual labor in the reci-

ations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held par-

amount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. — When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

## AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the ques-tion so often asked: "Do you think I can meet my expenses by work?" Some students make one half their expenses, some the whole, and excep-tional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

# RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

#### PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Department, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Educa-tion. Price, 75 cents a year. Address A. A. Stewart, Manhattan.

Full Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

#### TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after charge for enrollment. after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

#### RAILROAD TIME-TABLE.

# KANSAS PACIFIC RAILWAY.

No. 4

		PASSENGER ARRIVES.	
2.	going	East	11:45 A. M.
4.	going	East	3:47 A. M.
1.	going	West	4:40 P. M.
2	going	West	4:35 A. M.

No. 9 (freight), going West..... 8:45 A. M. FREIGHT ARRIVES. 

Nos. 1 and 2 run daily; Nos. 3 and 9 run daily except Monday; No. 4 runs daily except Sunday. Passengers with tickets are carried on No. 9. GEO. C. WILDER, Agent.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

School District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

Habits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price \$1.25 by money Sold at th Wm. Dent, Agent, Manhattan.

Manhattan Bank.—E. B. Purcell, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

athematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rether than for the heavest of the astronomer. rather than for the benefit of the astronomer.

Special for Woman.—Special lectures on Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

Tlub Rates.—The regular price of the Kanvas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the INDUSTRIALIST for \$2.75; or the Farmer and INDUSTRIALIST for \$2.25: or the or the Farmer and Industrialist for \$2.25; or the American Young Folks and the Industrialist for

Board of Regents.

S. M. WOOD, President, Elmdale.
W. L. CHALLISS, Vice-President, Atchison.
JNO. A. ANDERSON, Secretary, Manhattan.
B. L. KINGSBURY, Burlington.
J. R. HALLOWELL, Columbus.
T. C. HENRY, Abilene.

E. B. Purcell, Treas. L. R. Elliott, Land Agent. M. L. Ward, Loan Commissioner. Manhattan, Kansas.

FACULTY. J. A. ANDERSON, President, Prof. Political Economy.
M. L. WARD, Prof. Mathematics and English.
G. H. FAILYER, Prof. Chemistry and Physics.
E. M. SHELTON, Prof. Prac. Agricul., Sup't Farm.
H. E. VAN DEMAN, Prof. Botany and Horticulture.
J. E. PLATT, Prof. Elem'y English, Mathematics.
JNO. D. WALTERS, Teacher Industrial Drawing.
HON D. I. BREWER, Lecturer on Practical Law HON. D. J. BREWER, Lecturer on Practical Law. T. T. HAWKES, Sup't Mechanical Department.
A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
W. L. HOFER, Teacher of Instrumental Music.

#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education, depends many the kind and contains of education depends upon the kind and the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agriculness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a weeful and the state of the s chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an educa-tion; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

## FARMER'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
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Practica Geology Polit. Ex Zoology Agricul. Logic.	Rotany Inorgai Practic Horticu Organii Practic	Ph Al Ph Ph	Drill Drill Indu Engl Adv'
act olo lit. olo ric gic	tan org act rti gai	Physiole Rhetoria Algebra Practica Physics Industri	rill brill ndus ngli dv'd
	Botany, E Inorganie Practical Horticul., Organic, A Practical	Physiology Rhetoric. Algebra. Practical A Physics. Industrial	Drill in E Drill in A Industrial English St Adv'd Arii
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Practical Agriculture (advanced.) Geology, Mineralogy. Polit. Economy, Practical Law. Zoology. Agricul. Chemistry, Meteorology. Logic.	Botany, Entomology Inorganic Chemistry. Practical Geometry. Horticul., Landscape Organic, Analytical Practical Surveying.	Physiology. Rhetoric. Algebra. Practical Agricul. (elementary). Physics. Industrial Drawing.	Drill in English. Drill in Arithmetic. Industrial Drawing. English Structure. Adv'd Arithmetic, Book-keeping. U.S. History, Industrial Drawing.
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WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

## WOMAN'S COURSE.

	II OAKEAAA		
FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
6.074.39.7.1	1. Botany, 2. Inorgani 3. Industri 4. Horticul 5. Organic, 6. Househo	1. Physiology. 2. Rhetoric. 3. Algebra. 4. English Literature. 5. Physics. 6. Industrial Drawing.	1. Drill in English. 2. Drill in Arithmeti 3. Industrial Drawin 4. English Structure 5. Adv'd Arith., Boo 6. U.S. History, Indu
Farm Economy, Special Hygiene Beology, Mineralogy. Beolit'l Economy, Practical Law Zoology. Phys'c'l Geography, Meteorology Logic.	Entomology. ic Chemistry. ial Drawing. L. Landscape Gardening, Household Chemistry. old Economy.	ature.	ghish. Ithmetic. Drawing. Tucture. h., Book-keeping. y, Industrial Drawing

## MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural

knowledge taught in the farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose-of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the asual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS Having knowledge in the head is one thing ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly underpractical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

FOR FEMALE STUDENTS. Dress-making. Printing. Telegraphy. Scroll-sawing. Carving. Engraving.
Photography.
Instrumental Music.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them are to the proper tempt of Instrumental them, except in the Department of Instrumental Music. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

#### DEPARTMENTS OF INSTRUCTION.

## DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE.

Second Year: - General principles of breeding history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage how to lay out a system of drains; house drain-

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; generaadvantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; ma-nures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY.

Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making treatment of rennet; general process of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

# DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

This department embraces a course of instruc-tion in the elements of botany, structural and systematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practi-cal drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of pruning; the orchard; fruit suitable for orchard and and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applica-tions of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are acthe homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

## CHEMICAL DEPARTMENT.

PHYSICS.

This includes a full consideration of the laws of This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to their history, properties, manufacture, and especially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboratory practice.

CHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY.

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallog-raphy, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composi-tion of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of fruits, etc.

SPECIAL COURSES
Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE.

Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called lan-guage, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the stu-

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letdiscussion; capitalization; punctuation; construction and analysis of sentences: elements, uses and names; criticism of compositions printed as written; proof reading; gramconstruction; superfluous words and clauses; drill in reading, speaking and penman-

ship.

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.

Pupils deficient in spelling, etc., should enter the printing class, the printing-office being the

work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS.—The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the topics included are:
Roots: What are they; their origin; their force

and value as an element of language; the manner of their growth into different parts of speech.

Stems: Their derivation; their offices and properties; their relation to other parts of words.

Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems.

Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given operations are performed, but because they can neither add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed the full extent of its real utility. The areas of field expense of crops, construction of houses, sale expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

ALGEBRA.
Algebra is included in the course as a preparation for the study of Surveying.

DRAWING.
The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when lay-ing a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Draining during the torms indicated by graphical Drawing, during the terms indicated by the Course of Study. In addition, constant prac-tice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Depart-

PRACTICAL GEOMETRY.

ment.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task.

There is no calculation made or formula used by
the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical prin-ciples and their applications; and extended field practice is required in the use of the compass, evel, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management at the Acoustic of Loctures is delivered. omy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

GARDENING is included in Practical Horticulture. See heading, "Landscape Gardening."

HOUSEHOLD CHEMISTRY. See heading, "Household Chemistry."

HOUSEHOLD ECONOMY

Follows Household Chemistry and consists of lec-

HOUSEHOLD ECONOMY
Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and en laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlastingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry—and no more expensive. practice in chemistry - and no more expensive.

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# KANSAS STATE AGRICULTURAL COLLEGE

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Address A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION.

INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, needicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

Normal education:

ioliows:		
Normal education: Teachers	1.13=	1.18
Professional education:	0.43	
Ministers Lawyers	0.55	
Doctors	0.73==	1.75
Industrial education:		
In agriculture	59.13	
In manufacturing and mechanical	14.63	
In personal service	13.89	07 1/
In trade and transportation		
	1	00.0

AGRICULTURAL COLLEGE. Recognizing the need for an education which Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its maintenance.

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter. LOCATION.

COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Fineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then it has a well-stocked farm and COURSE OF STUDY. course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dress-making printing telegraphy carving energying making, printing, telegraphy, carving, engraving and music.

# Sheep-Keeping in Kansas.

water, and they will degenerate and become diseased where there is great humidity and on low, wet land. Hence, pastoral life has on low, wet land. Hence, pastoral life has always been coupled with arid plains or mountains; and we only read of "the flocks upon the hillside." Twenty years ago continued storms were unknown here, and we had only brisk showers, followed at once by sunshine. The increase of the white man and the late influx of the cloudy black, has seemingly — under God — not only changed politics, but the seasons. Showers are now more frequent and a week of rain not unusual; and there have been times when for a month rain has hardly ceased. At this rate of progress the day is not distant when the plains west of us will "blossom as the rose," receiving the rains in their season, and not the unnatural irrigation of man. The "drought of '60" is broken, but we have no fear that the rains will be so abundant as to curtail the sheep industry. Our winters are about five months long, during which more or less dry food is required. In April the sheep are turned upon the prairies, the succulent grasses of which soon inspire animal life with new vitality. These prairies or out-lands are owned by railroads or non-residents, and will afford a free range for stock for years to come. In this we glory, and Kansas is ahead! The pastoral regions of Colorado and California are now owned and controlled by cattle kings and big shepherds with their 100,000 sheep, and the masses have no rights upon the range. Here the "lion lies down with the lamb," and all men are equal in their rights over the public domain.

The sheep are kept on this grass until frost, which comes in October, when they are taken to the farm and turned upon the rye, blue-grass or clover fields, where they will thrive so long as snow does not cover it. If no such winter pasture is at hand, the sheep will require, in addition to what they glean from the frost-bitten prairie, a daily feed of corn-fodder or good hay, to be increased as the weather grows colder. The lambs and breeding ewes should also have a daily ration of grain, say an ear of corn or its equivalent per head. This will keep them strong and growing. The wethers, if intended for mutton, should have no less than a pint of corn per day, with plenty of fodder or hay. We crush our corn in the ear, and are very partial to cob-meal for sheep. But the manner and method of feeding, on which, indeed, the whole question of success hinges, must be left for some future discussion. As to shelters, common sense says build them. No part of the temperate zone is so serene that snclemencies do not occur, against which animals need protection. The warmer they are kept (not to the exclusion of fresh air), the less food they require. Protection is economy; exposure is waste. Rude shelter can be quickly and cheaply constructed of forks and poles, covered with hay and left open to the south. Inclose these with a picket fence, and your sheep are happy and comfortable, and safe from the incursion of dogs and wolves.

All kinds of sheep thrive here, but the finer thorough-bred varieties of Cotswold, Southdown, Merino, etc., are in the hands of a few, and are kept for breeding purposes. Such a flock represents much capital, and requires much subsequent care, especially the combing wools. They are only suited to small flocks, attended with great care, stabling and high feed, to keep them up to the standard. The fine wools are more hardy and self-reliant, but the wool product, the best price; nor do they, in their purity, stock, and hereafter will be kept in this produce the most mutton. The question is, trade, provided it pays. There is no reason

what sheep is best adapted to the wants and Of all animals, sheep require the least ability of the masses? It is the common then throw in a cross of Cotswold, and you have a sheep producing a large clip of desirable quality, and a carcass big and well rounded for mutton. Such sheep can be found for from \$1.50 to \$3 per head, and an acre of ground - well stocked - will support eight or ten of them. For medium, unwashed wool, for three years past, we have received at our door, respectively, 25 cents, 24 cents, and 23 cents per pound. This makes about \$1 per head, or sufficient to pay the running expenses of the flock, leaving the increase and growth to the side of profit. As to location, we prefer northern Kansas; her general fertility, healthful climate and abundant markets render her the peer of all others.

But the pilgrim must select his own home. Unimproved land is held at \$3 to \$10 per acre; improved at \$8 and upward, according to the extent and value of the improvements. I was bred upon the historic ground of Monmouth county, N. J., ministered as a physician for years to the invalids of Burlington county, both oases in that vast expanse of sand; but their palatial homes and finished fields, after these many years of absence, have no power to draw me homeward, nor any magic compared with the simple cot of the shepherd.—Dr. W. L. Challiss, in the New York Tribune.

# Our Live-Stock Trade With England.

The facility with which live stock is produced in the West, and, indeed, upon all the great grassy plains of this continent, has already, the since improvement in transit, been felt. It has stimulated consumption in all those European countries, beginning with Great Britian, where heretofore laborers could only treat themselves to a meat diet at intervals of from a week to a month. This constantly increasing consumption has chiefly been seen in an increased demand for salted and other cured meats; more lately it is showing itself among the laboring classes, and particularly in all that class between the day laborer and the middle class. The English people have always been meat eaters, - when they could get it, - and of late years they have steadily consumed more and more. In France, Belsteadily increasing nevertheless.

Some time since we stated that a fall of one cent per pound in the price of meat in the United States would strongly increase consumption. A fall of one penny in Europe has the same stimulating effect upon consumption. Once this taste has been gratified, the demand will be steady, and only to be checked by the disability of the purchaser to buy. A largely increased advance in the price of bread grain in Europe, from short crops and a slight decline in the prices of meat, from largely increased and cheap production here, has assisted the consumption of flesh and diminished vegetable diet. The change is a good one. The laborer will be better fed, and at only a slightly advanced cost, if indeed at all; for the poorer class the world over use the cheaper cuts, and from them make most savory dishes.

The export of live cattle from the United States and Canada has almost entirely grown up within the last three years. This year steamers which have heretofore taken pasunder present regulations, does not bring sengers, have been fitted up for carrying live riot.

why it should not. In the earlier years of live shipments, money was lost to shippers. It is often the fact that new lines of trade lose money at first, and afterwards retrieve their losses and make money. It will undoubtedly be true that shippers and dealers will make money in this trade, and it is right they should.

Last week we noticed the shipment of Short-horn cattle to England, via Canada, by prominent breeders of the West. Shorthorns have heretofore been shipped to England from the United States, but not in this

The impetus given to the shipment of live stock to be killed in England is said to have received such a stimulus this season, that the regular carrying steamers have not capacity enough, and sailing vessels have been pressed into service. A shipment of such a cargo in one of the Allen clippers arrived in excellent condition. Thus another and cheap means may be added to the transportation of live stock across the water. The cost of shipping by steamer we believe is about \$30 per head. Upon cattle weighing 1,400 to 1,600 pounds this would be about two cents per pound, not an exorbitant cost, and yet it is undoubtedly a price upon which vessel-owners can make good profits. The foreign supply of cattle last year, as we some time since stated, as coming from the veterinary department of the privy council of England, landed at the different wharves of the port of London, was 839,590 head. The total number of cattle in Great Britan, according to the same authority, on June 4, 1877, was 5,697,933 head. The total number of live stock, exclusive of horses, was 36,357,825 head. The Toronto Globe gives the total number of live stock shipped to Great Britan last year at 1,100,000 head, of which 7,665 were sent from Canada. This shows not only the large amount of stock outside of the home supply required by England yearly, but in view of the fact that lately shipments of live stock have been made to the continent to be fattened there, it would seem to point to the fact that ultimately the supply of fresh meat must come from the United States and the West.— Prairie Farmer.

Foreign newspapers contain an account of a discovery in Asia Minor which appears to be a matter of importance. A plant which produces tea of excellent quality has gium and Germany the poorer classes are been found in the neighborhood of the city steadily increasing their consumption of of Tebizond, growing wild and abundant. meat, checked within the last two years, it Tea made from the leaves of this plant is is true, from the depression in trade, but said to posess all the virtues and aroma of tea grown in China. Five thousand pounds were speedily disposed of in the local market chiefly to Persians, who are great tea drinkers. They recognized the merit of drinkers. They recognized the merit of the newly-discovered plant, and buy it at Trebizond and send it to their own country. The tea was sold at about thirty-eight cents per pound, but if properly prepared would fetch a higher price.

> PORTUGAL has but one university, Coimbra, founded in 1290. It has 70 instructors and 1,100 students. There are 2,450 elementary schools, and parents whose children can not read and write by 15 lose their political rights.

Can these be very hard times - can a country be very "hard up" which consumes 50,000,000 gallons of whiskey, 10,000,000 barrels of beer, and 2,000,000,000 cigars in a single year?—Buffalo Express.

AMERICA calmly wanders off with eight of the eleven prizes for agricultural machinery at the Paris Exposition .- Atchison Pat-

HARVARD library has 228,000 volumes.

SATURDAY, SEPTEMBER 28, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

THE Ottawa Journal credits the Industri ALIST with an article on the "irredeemable greenback" movement, which, of course, belongs to somebody else. The Industrial IST is not a politician.

FROM the Kansas Star, a weekly publica tion issued by the printing department or the State Deaf and Dumb Asylum, we learn that over ninety pupils were enrolled at the opening of the fall term. We are glad to hear that the institution prospers, and glad to see it follow a system of practical, industrial education, thus filling its mission as a training school for spiritual as well as actual life. A cabinet shop has been erected during the vacation, and cabinet-making is now added to the printing and shoe-making trades - already taught in the institution. We greet the Star, which we have missed during the vacation, with a cordial good morning.

As a larger number of the citizens of Kansas are engaged in farming than in any other industrial pursuit, this Institution pays greater attention to the sciences which most concern agriculture than to those which relate to the mechanic arts. Nevertheless, since most of these branches of learning are equally useful to the mechanic; since some skill in the use of the mechanic's tools is advantageous to the farmer; and especially since the Congressional grant was made "to promote the liberal and practical education of the industrial classes," upon conditions which cannot be repealed by State sentiment or enactment; we feel bound, in so far as we shall have the ability, both as the lawful trustees of that grant, and because of the peculiar necessities of a young and grow ing State, to place fairly within reach o the youths of Kansas, such knowledge and skill as will best and soonest enable them to earn an honorable livelihood by the practice of some one of the industrial pursuits, common in the State.

# Shoddy.

The world is full of it. We find more or less of it in almost every article we use. We see it in all ranks and conditions in life. There are shoddy manufacturers, shoddy farmers, shoddy doctors, shoddy teachers, shoddy learners, and even sometimes shoddy preachers. We learn many times by sad experience that "all is not gold that glitters."

Now, shoddy never pays. It does not pay the producer; for although it may seem at first to be an advantage to him, it will be found in the long run to be very poor policy; for when his goods are known, he will find very poor market for them. His character and his reputation are gone, and with them his business goes down. While on the other hand, if he is known to do good and faithful work, that which he produces will be sought for at a higher price than that which his neighbor produces, and his business increases in proportion. Shoddy does not pay the consumer; for although his purchase may seem cheap at first, the glitter soon wears off and he finds himself in possession of an almost worthless article. He takes little satisfaction in the use of it while it lasts, and in a short time is obliged to procure another.

No, shoddy does not pay; and yet a large portion of mankind continue to produce it. One reason why we have so many thriftless farmers in Kansas is because there is so chanic can apply the learning with the

much shoddy work done. The farmer who does his work thoroughly, who plows his ground well, plants his seed in proper season, and sees that it is carefully put in; who protects it, cultivates it thoroughly, and saves it from waste or destruction, and at the same time takes good care of his tools and teams, is not the man to complain that he can not make a living in Kansas. If all would follow the old maxim: "Whatever is worth doing at all is worth doing well," much greater prosperity would attend them.

One of the poorest places in the world to lo shoddy work is in the school-room. The student who only half prepares his lesson, gets very little value received; he pushes obstacles before him instead of removing them out of the way, until he gets such a pile of them before him that he stumbles and falls. He takes very little satisfaction in his work, wastes his time and his money, and receives no benefit; while the one who is thorough in the preparation of each lesson, prepares himself to understand that which follows, takes pleasure in pursuing the study, and receives that information and discipline of mind which the study is calculated to produce. Then I would say, Students, master your lessons. Do not leave a stone unturned, and you will receive an advantage from study that will be a satisfaction to you as long as you live .-Prof. Platt.

#### Design of Congress.

When Congress ordained a liberal and practical education for the industrial classes it logically and inevitably required both the teaching of learning and the teaching of the

For then, as now, scores of venerable and vigorous colleges afforded a liberal education. They not only taught all the branches of learning which relate to agriculture and the mechanic arts, but, because of their strength, taught them better than could be done by younger institutions. Nevertheless. that education was virtually adapted to the

wants of the professional classes. After showing its appreciation of these institutions by liberally endowing new ones of the same kind, Congress yet more liberally endowed colleges for the education of the industrial classes, and called for an accurate revaluation of the several branches of learning by the original standard of their exact usefulness. It demanded their reappointment, their presentation from a new standpoint, their application in new directions and along the shortest lines, and the provision of wholly new appliances. It demanded for these institutions all the knowledge, instruction and apparatus which then existed, or would exist, in the best literary colleges, so far as useful to the industrialist; and then, in addition and beyond all this, it demanded farms, nurseries and herds, kitchens, sewing-room and dairies, work-shops, printing and telegraph offices, photographic, pharmaceutical and assayer's laboratories - in short, every appliance employed in industrial work. And from the very nature of the case it required that these appliances should be for the personal and continued use of the student, and not merely as means of illustration in the hands of the teacher; because only by such use can the student acquire a "fitness for doing actual business."

The function of the Literary Departments of the Agricultural College is "to teach such branches of learning as are related to agriculture and mechanic arts." The function of the Industrial Departments is to render the student skillful in the several operations by which the farmer and me-

least labor and greatest profit. Neither of these general departments must overshadow the other; neither must interfere with the other Their respective foundations are equally broad and their mission equally noble. They must walk hand in hand at any and every sacrifice, and must harmoniously work to a single end - the benefit of the student.

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Riley.

Riley.

Abbott, Harmen Adams, Emma L. Riley. Mitchell. Allen, Chester Anthony, Mollie Cherokee. Ellsworth. Ashmead, George R. Ayres, Sarah Shawnee. Bates, Charles W Vermont. Marshall. Beacham, Augustine Blain, Arthur T. Riley. Riley. Breakbill, John Browning, Abbie L. Riley. Browning, Emma Riley. Buchli, Bartholomew Wabaunsee. Buell, Delight A. Riley. Butts, Halleck D. Jefferson. Riley. Campbell, Emma Riley. Campbell, Ettie A. Riley. Campbell, May Carter, John E Shawnee. Chenoweth, Charles C. Cherokee. Saline. Coburn, Ella Missouri. Coe, Henry F. Missouri. Coe, Jennie A. Riley. Cox, Lizzie R. Johnson. Dickson, A. F. Dickson, James B. Johnson. Butler. Donaldson, Alvin Butler. Donaldson, Flora Butler. Donaldson, George Dow, George H. Eckman, Wilmer K. Riley. Osborne. Illinois. Edmiston, Dora Pennsylvania. Emrick, Katie Lincoln. Farnsworth, Henry E. Jackson. Finley, Charles A Flack, John B. Dickinson. Foreman, Albert M. Riley. Riley. New York. Glossop, Emma Goin, Edgar L. Jackson. Gordon, George A. Gregg, Frank B. Coffey. Riley. Republic. Griffing, William J. Hatch, Linda Hillyer, William J. Himes, Hattie Jefferson. Riley. Hosmer, Mina Riley. Riley. Houston, Hortense Howden, George W. N. Chautauqua. Johnson. Hulett, C. M. Humphreys, George Sumner. Hunt, Henry L. Cherokee. Cherokee. Hutsell, Sallie Jacobs, James H. Cherokee. Davis. Jaquith, Walter W. Riley. Jeffrey, William J. Jeffrey, Fletcher Riley. Butler. Jewell, Fred Jones, Horace B. Wabaunsee. Kingsbury, Eddie L. Coffey. Kinsey, Dora Shawnee. Knipe, George D. Riley. Riley. Mitchell. Knostman, Emma Leach, Darwin S. Riley. Lewis, Issie Lewis, Samuel O. Light, Willis Lyon. Neosho. Limbocker, Clyde Limbocker, Clarence Luse, William P. Pottawatomie Pottawatomie. Missouri. Cherokee. Lynch, Fred C. Lynch, James H. Mails, Mattie Cherokee. Pottawatomie. Mann, John Rice. McBratney, William McGuire, Katie I. McNair, Alice E. Nemaha. Johnson. Wabaunsee. McNair, J. L. McNair, S. E. Wabaunsee. Wabaunsee. Messenger, Charles Miller, Edgar Cowley. Davis. Johnson. Millikan, Minnie E. Mills, Hattie L. Missouri. Moore, Thomas R. Smith. Morgan, S. M. Morrow, John N. Lyon. Johnson. Myers, Wirt S. Allen. Nemaha.

Neiman, Charles Noland, Manda

Noyes, Amy E. Noyes, Ida L.

Paine, Edwin C.

Outt, J. F.

Riley.

Lyon.

Wabaunsee.

Wabaunsee.

Montgomery.

Parker, Grace Pettit, D. C Pfoutz, William A. Platt, Henry A. Randel, Alta Randel, Charles F. Randel, Henry A. Records, C. M. Reed, Willie S. Reeve, Mark A. Richards, Bettie Richardson, Noble A. Rollings, W. E. Rose, George E. Rose, Wm. N. Rushmore. H. C. Rust, Charles Salter, Lewis A. Scott, Nannie Shartell, Cassius M. Sickels, Maria E. Sigman, George L. Sikes, Wm. H. Sloan, John A. Snow, Cora L. Southwick, Charles A. Spicer, Joseph C. Spooner, Alice G. Stiles, Charles H. Stoner, Fannie A. Strong, Grace R. Talbott, John R. Tarrant, Will S. Thomen, R. O. Thompson, George F. Throckmorton, George Travis, Jared M. Vaught, Cora Vincent, Ella E. Ward, J. W. Welch, C. R. Whaley, Rowena Whaley, Willie E. Whiteside, Wm. A. Williston, Frank D. Wilson, Elmer E. Wood, Clarence E. Woodburn, William Woods, Albert O. Woodworth, J. W. Wright, Robert H. Wyland, T. J.

Riley. Cherokee. Atchison. Riley. Nemaha. Nemaha. Nemaha. Chautauqua. Riley. Lyon. Pottawatomie, Wilson. Ottawa: Cherokee. Cherokee. Jefferson. Atchison. Montgomery. Cherokee. Chautauqua. Montgomery. Chautauqua. Pottawatomie. Clay. Riley. Riley. Lyon. Clay. Wabaunsee. Atchison. Riley. Atchison. Cowley. Davis. Cowley. Coffey. Wilson. Butler. Riley. Cherokee. Harvey. Riley. Riley. Cherokee. Riley. Cherokee. Riley. Nemaha. Sumner. Cherokee. Ford. Jewell.

Club Rates.—The regular price of the Kan-sas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the INDUSTRIALIST for \$2.75; or the Furmer and INDUSTRIALIST for \$2.25; or the American Young Folks and the INDUSTRIALIST for

Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "PRENTIS IN EUROPE;" "PIKE OF PIKE'S PEAK," the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "THE WORLD A SCHOOL," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address George W. Martin, Publisher

Drinting !- Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST by the Department furnishes advanced students the requisite drill in newspaper work.

The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixtyfour pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case,

Kansas City, Mo.
This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific subjects.

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

to their reliability and their dark popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

33-44

SATURDAY, SEPTEMBER 28, 1878.

Six new students have been enrolled this week.

According to our meteorological record, the average temperature for the week has been 60°.11; range of temperature, 41°. No rainfall.

The Fair has fulfilled the expectations of all. The weather has been delightful and the crowds immense. We expected to get our report in this week, but are compelled to postpone it.

The Fair has brought many strangers to Manhattan this week, and a great many of them have visited the College. Every day we have noticed parties being piloted through the different departments by professors or citizens of Manhattan.

George Platt came down from Vienna Friday morning, and took all his friends by surprise George has a large music class, and, besides giving good satisfaction, is making from three to four dollars per day. He expects to attend Oberlin College next term.

Prof. Failyer was taken with a chill Friday morning, and was compelled to dismiss all his classes. Chills and colds are prevailing diseases in this locality, at present. When frosts come, and the weather once more gets settled, we may look for better health.

British. Sovereign II, a fine Berkshire boar which the College farm sold last spring to Mr. Gentry, of Sedalia, Mo., walked off with the first prize at the Kansas City Exposition. This certainly ought to recommend the College stock to purchasers. The pigs now for sale were gotten by this same British Sovereign.

A. N. Godfrey, the valedictorian of our last graduating class, was here last week, gathering up the effects which he had collected during his schooling here. He will please accept thanks for a fine lot of apples from his farm in Greenwood county. We expect to publish Godfrey's marriage notice in a few weeks.

The College has never had a better class of students within its walls than are here the present term. Every one means business, and they have all settled down to hard work just as if they meant to accomplish something - and they will. At no previous term have so large a per cent of the new students entered the second and third years, which fact of itself substantiates our first statement.

Miles Ellsworth and Jay Dutcher, both former students in the Printing Department of the College, but now employed on the Enterprise and Nationalist respectively, have issued a daily paper during the Fair called The Cynosure. It was a neat and spicy little sheet, well patronized by the business men of Manhattan, and clearly marked by Ellsworth's peculiar yet forcible way of saying things. We judge the boys will make quite a "stake" out of it.

We see by letters in the Topeka Commonwealth and Atchison Champion that President Anderson is making a good impression upon the people of the Northwest. Though known by reputation to the people of that section, he has never before visited it; and the heartiness with which he is received, the promptness displayed in the endorsement of his views on the leading issues, together with the generous and vigorous support tendered him, all go to show that he will poll the full vote of the party, and be elected by the usual majority.

The Alpha Beta Society met Friday, the 20th, with President Blain in the chair. Debate on the question, "Resolved, That the right of suffrage should be granted to women," resulted in favor of the affirmative. The extemporaneous speaking was very interesting, both members and visitors taking part in a spirited manner. During this exercise, Prof. Failyer, an old member, favored the Society with some instructive and encouraging remarks. The meeting was a very satisfactory one. The music was good, the essay and select reading were well chosen and delivered, and several new names were proposed. At the next meeting the Gleaner will be presented.

The usual laboratory practice, in which the student performs for himself and with his own hands the experiments given in the text-book and which he has seen performed in the lecture-room, is continued this year. The present class in chemistry enter upon the work with great enthusiasm; and have been really successful in obtaining results and avoiding the explosions and breakages so common to those who are unaccustomed to such manipulations. The class has been taken to the laboratory for this practice twice this week. It is the intention to make the student thoroughly conversant with the principles involved in an experiment, and to give him the dexterity requisite to perform it.

The Webster Society met Saturday evening, Sept. 21st. The officers who were not present at the previous meeting were inaugurated. Messrs. Leach, Light, Morrow, Throckmorton and Allen were elected members, and Messrs. Shartell, Leach and Morrow were initiated. The question, "Resolved, That the establishment and maintenance of any political parties besides the Republican and Democratic would be detrimental to our country," was decided in the negative, after a spirited debate. Extemporaneous speaking passed off very pleasantly. The names of Messrs. J. H. Lynch and W. P. Luse were proposed for membership. The first number of the second volume of the Webster Reporter was presented by A. F. Dickson. A purse of fifteen dollars was raised for the benefit of the yellow fever sufferers, and a committee appointed to forward the same to the Howard Association at Memphis. The time of meeting was fixed at 7:30. Question for debate at next meeting: "Resolved, That the introduction of free trade into the United States would be for the best interest of all its industries." Affirmative, Morrow and Wood; negative, Leach and Eckman. Editor of Reporter, C. M. Hulett. REPORTER.

#### NATIONALIST ITEMS.

Clair Patee is in town visiting old friends.

The parsonage of the Methodist Episcopal church is having two coats of paint, and with the neat grounds is a very pleasant-looking home.

The annual meeting of the Riley County S. S. Association will be held in the Baptist church Manhattan, commencing on Tuesday, Oct. 1st, at 2 o'clock P. M., and continuing two days.

The chimney on the stone house where Mrs. Cripps lives, on College Hill, was blown over last Monday night, doing considerable damage to the house and greatly alarming the inmates.

The Cynosure is a twelve-column daily, published by Messrs. Ellsworth & Dutcher during the Eair. They are enterprising young men, and we are glad to see that our business men have been very liberal with them in the matter of advertising.

#### CYNOSURE ITEMS.

It was estimated that over 1,200 people attended the Fair yesterday (Wednesday).

There is a blackberry vine over the east door of the Floral Hall, showing the enormous growth of 16½ feet in one year. Also a rose bush belonging to Levi Woodman, showing a growth of 16¾ feet in the same time

It took two of Manhattan's "trump" officers, a handful of whiskers, a pair of hand-cuffs and an immense amount of howling, to take one pitiful, small drunken man to the calaboose yesterday. Oh, the true, manly courage and self-possession exhibited by the one who peppered him on the head and extracted the "har!" Terrific!

At one o'clock everybody and his or her heir as the case was, and those who were not so fortunate as to possess one of the aforesaid, hied away to the Fair grounds to see and indulge in the baby show. There were sixteen entries—sixteen expectant mothers. There were U. S. babies, German ditto, Irish, Welch and African babies; sleeping babies and bawling babies. After duly inspecting the specimens of infantile perfection, the first premium was awarded to the heir of Mrs. Jno. Drew, second, to Mrs. Whitney's; colored, to Mrs. Williams' baby.

## DIRECTIONS TO APPLICANTS.

## TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he

will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as posssble.

GRADES. Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each nation of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much

industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

## RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath. EXPENSES

There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the

regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and

the use of pianos or organs.

The only charge made for material in either the literary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per term. No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.—Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held parameunt in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. — When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour. cents an hour.

#### AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. As a cathled faith hor abilled in form work can earn tional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question one for his own consideration and decision. We can teach all who come but cannot absolutely can teach all who come, but cannot absolutely promise anything more. Hitherto we have repromise anything more. Hitherto we have re-frained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined boy. As yet we are unable to offer determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

## RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

# PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Depart-ment, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Education. Price, 75 cents a year. Address A. A. Stewart, Manhattan.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

# TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

## RAILROAD TIME-TABLE.

#### KANSAS PACIFIC RAILWAY. PASSENGER ARRIVES

No. 2, going East	
2.47 A M	
No 4 coinc East	
No. 1, going West 4:40 P. M	
No. 3, going West 4:35 A. M	
No. 9 (freight), going West 8:45 A. M	

FREIGHT ARRIVES. 

Nos. 1 and 2 run daily; Nos. 3 and 9 run daily except Monday; No. 4 runs daily except Sunday. Passengers with tickets are carried on No. 9.

GEO. C. WILDER, Agent.

#### LITERARY SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870.

Meets in College building every Friday at 2 P. M.

Ladies admitted. New students cordially invited A. T. BLAIN, President. to attend.

MISS JENNIE COE, Secretary. WEBSTER.— Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. especially students, always welcome.

JOHN MANN, President.

# W. K. ECKMAN, Secretary.

Condensed by Prof. Failyer from the observations taken at the State Agricultural College, for the week ending September 26th, 1878. Latitude, 39°12'; Longitude, 96°40'; Height, 1,200 feet.

METEOROLOGICAL RECORD.

Manager Assessment States and the		mper	ature.	Bar.	
DAY OF WEEK AND MONTH	Max.	Min.	Mean.	Mean Hight.	Inches of Rainfall
Friday 2	620	1500	1530	28.77	
Saturday 2		56	63 .75	28.83	
	2 79	52	68 .50		
Monday 2		43	57 .50	28.78	The same
Tuesday 2	4 80	60	71 .50	28.57	
Wednesday 2	5 62	39	55	28.86	
	6 64	43	51 .50	29.12	1

Range of temperature for the week, 60°.11.

five line instruments, and daily instruction and drill by an experienced operator.

mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

B. Roberts, M. D.—Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Yocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reckoned as an "industrial."

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Poyntz Avenue, Manhattan. 19-3m

Clothier.—Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan. 11-26

drill in Kansas Horticulture. The Nursery, Orchard, Vineyard, Vegetable Gardening, Flower and Landscape Gardening, and Kansas Forestry.

The Farm Department of the Agricult-ural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the high-est breeding. Address E, M. Shelton, Manhattan, Kansas. 3-47-tf Kansas.

Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

chool District, Township and County Bonds.—District Boards, Township Officers, and County Commissioners are invited to correspond with us before negotiating elsewhere, as we always pay the highest market price. Address, E. Gale, Loan Commissioner, Manhattan

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

English Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Manhattan Bank.—E. B. Purcell, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

Mathematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, The course is shaped for the Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

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W. L. CHALLISS, Vice-President, Atchison.
JNO. A. ANDERSON, Secretary, Manhattan.
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#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughthe knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools. those arts and sciences which ematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which fourth years are the spine of the course, to which the others are as ribs and muscle.

## FARMER'S COURSE.

	FARMENS	COURSE.	
FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Practical Agriculture (advanced.) 2. Geology, Mineralogy. 3. Polit. Economy, Practical Law. 4. Zoology. 5. Agricul. Chemistry, Meteorology. 6. Logic.	<ol> <li>Botany, Entomology.</li> <li>Inorganic Chemistry.</li> <li>Practical Geometry.</li> <li>Practical Geometry.</li> <li>Horticul., Landscape Gardening.</li> <li>Organic, Analytical Chemistry.</li> <li>Practical Surveying.</li> </ol>	<ol> <li>Physiology.</li> <li>Rhetoric.</li> <li>Algebra.</li> <li>Practical Agricul. (elementary).</li> <li>Physics.</li> <li>Industrial Drawing.</li> </ol>	1. Drill in English. 2. Drill in Arithmetic. 3. Industrial Drawing. 4. English Structure. 5. Adv'd Arithmetic, Book-keeping. 6. U.S. History, Industrial Drawing.

## WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared express We for their liberal and practical education. have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

## WOMAN'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
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# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies

INDUSTRIAL DEPARTMENTS.

Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is ability to use it with the tongue, ningers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turing.
Wagon-making.
Painting.
Blacksmithing.

FOR FEMALE STUDENTS. Dress-making.
Printing.
Telegraphy.
Scroll-sawing.
Carving Carving.
Engraving.
Photography.
Instrumental Music.

Blacksmithing. Instrumental Music.
Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

# DEPARTMENTS OF INSTRUCTION.

# DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE.

Second Year: - General principles of breeding history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage; how to lay out a system of drains; house drain-

age; sewerage.

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed hus-bandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; genera-advantages of a rotation; the best rotation with reference to disposition of labor, production of reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmbouses; barns houses; barns.

FARM ECONOMY.

Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shallow" setting systems; general process of butter-making; packing and preserving butter.

# DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and systematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practical drill in all the work of the fruit, vegetable and flower gardens, pursery orchard vineyard and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery modes of of commercial and farm nursery; modes of prun-ing; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and use-ful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the heart of the people. These lectures are acthe homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

## CHEMICAL DEPARTMENT.

PHYSICS.

This includes a full consideration of the laws of This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their com-pounds, are next considered in succession as to their history, properties, manufacture, and especially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboratory practice.

CHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, mineral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzia's Manual Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed." METEOROLOGY.

Embracing the composition of the atmosphere; atmospheric pressure; temperature and humidity; laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observations is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallography, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composition of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of fruits, etc.

Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE. Words are simply tools used to express ideas and, since the vast majority of our communica-tions are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called language, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the stu-

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."-Herbert Spencer Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants.

\*Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of compositions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and pennan-

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter the printing class, the printing-office being the work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS .- The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the

which will aid in their effective use. Among the topics included are:

Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech.

Stems: Their derivation; their offices and properties; their relation to other parts of words.

Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance.

derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems. Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes as the choice of their abundance in the constitutes are supported by the constitutes as the constitutes are supported by the constitution of the cons

Criticism: This constitutes a prominent part of the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understand-ing and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the sev-

eral elements making up a sentence. MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instruments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given operations are performed, but because they can neither add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the stu-The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, except of the proper construction of houses sales of expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING Is a continuation of the above, having the same purpose and adopting such methods as the necessities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important art.

Algebra is included in the course as a preparation for the study of Surveying.

DRAWING.

The practical value of Industrial Drawing can The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the second and rule twenty times as often as he does square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith. Carpenter, Turns furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Department.

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with the proper state of the s such special guidance as is found mecessary for a full comprehension of the mathematical prin-ciples and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to instruction in hygienic matters as are valuable to woman.

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

Gardening is included in Practical Horticulture. See heading, "Landscape Gardening."

Household Chemistry. See heading, "Household Chemistry."

HOUSEHOLD ECONOMY
Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash HOUSEHOLD ECONOMY the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlastingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry—and no more expensive. practice in chemistry - and no more expensive.

# INDUSTRIALIST.

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Address A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION

INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and carefully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as follows:

Normal education:

Normal education:		
Teachers	1.13-	1.13
Professional education:		
Ministers	0.43	
Lawyers	0.55	
Doctors		1.71
Industrial education:		
In agriculture	59.13	
In manufacturing and mechanical		

AGRICULTURAL COLLEGE. Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,o00, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-average for its mainter. not dependent upon the tax-payer for its mainte-

LOCATION. It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

COURSE OF STUDY. COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an the following sciences as essentially useful to an intelligent and successful farmer: Physiology, intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Botany, Entomology, Practical Horticulture, Landscape Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving

#### Weights and Measures.

The treasury department at Washington is endeavoring in a quiet way to bring about uniformity in weights and measures used in the different States. Tradesmen in this country use three different systems of weights. Grocers and provision and coal dealers employ avoirdupois weight; jewelers, troy weight; and druggists, apothecaries' weight. The latter, however, buy their goods by one weight and retail them by another. Practical chemists use the French systems of weights in assaying and conducting analyses. In truth, they are employed in all scientific investigations. With the exception of the metric system of weights it is hard to say that we have any standard of comparison. The avoirdupois pound is less than the troy pound, but the troy ounce is greater than the avoirdupois ounce. Even in the same system of weights, the same word does not have the same signification in all parts of the country. A ton of coal in Pennsylvania is 2,240 pounds, but in a yard in Chicago it is only 2,000. Taken to one's house it contains several pounds less.

Within a comparatively recent time weights have been substituted for measures in estimating the quantity of most solid substances. Wheat is no longer measured in a half bushel, but weighed on a scale. We still talk of the bushel, however, as though it was actually in use. The word does not designate a measure of capacity, but a weight. It does not signify so many quarts, but so many pounds; unfortunately, how-ever, the number of pounds which constitute a legal bushel of any substance is not the same in all the States. In some States a bushel of oats weighs twenty-six pounds, but in others it weighs ten pounds more. Barley ranges all the way from thirty-two to fifty pounds. In one state a bushel of buck wheat calls for forty-two pounds, and in others fifty-two. Some States have established a weight for most of the farm produtcs sold, and others for only a few of them. In some States custom governs, and in others the statute. Where custom decides what shall constitute a bushel, it is not always the same throughout a State, if the first settlers came from different localities.

The bushel has outlived its usefulness. It is a word without meaning, or rather a word of so variable meaning as to be of no value. It only tends to confuse. The bushel no longer represents a measure of capacity. Like the candle it once covered it has gone out of use. Measures of capacity were formerly almost universally employed because they were cheap and common, while scales were costly and scarce. The former were found in houses and on farms, and the latter only in stores. Now, scales are manufactured so cheaply that any one can purchase them. The scale is not only more accurate but more convenient than the measure. This is so even for buying and selling most liquids as well as solids. The bushel should be abolished in name as well as it is in use. With it should go the barrel, which contains, or is supposed to contain, a certain number of bushels. As to the peck and quart of dry measure, they only serve as poor guides in enabling one to make a guess. In retailing fruits and vegetables, they only enable the seller to defraud the purchaser. The larger the articles, the less the buyer receives.

There are good reasons why not only dry but liquid measures should be abolished altogether, as they virtually are in California. There is no necessity for but one system of weights. Three systems of weights were in use in England on account of the trade with foreign countries, and our fathers brought them all to this country. In adopting a currency they were careful to have one in which the different coins increased

and decreased in a decimal ratio. It was proposed to have a decimal system of weights and measures, but it was objected to on the ground that the people were not ready for a change. The French decimal system is nearly faultless. Children in France learn to compute compound numbers in as many days as our children require months to master our tables and bring them into use. As it is, comparatively few persons can repeat with accuracy all our tables of weights and measures. The average time in school might be shortened six months by rendering our computation of weights and measures as simple as that of our money. The saving in after life would be greater than in school.

It is not, ordinarily, very hard to make a change from a difficult to an easy method of doing anything. It takes an American who visits England a long time "to get the hang" of the money used there; but such is not the case with the Englishman who visits this country. Every person can comprehend the decimal system of weights at once, and can learn and become accustomed to the new names in a short time. Should Congress adopt the metric system in all government operations, it would go far toward insuring the general introduction. The change would not make it necessary for every trader to procure new scales. Nothing would be required but to alter the scale-beam, which is by no means a difficult operation. By fixing a time in the future when the new system would come into use, people would be prepared for it. Americans are noted for using every kind of labor-saving machine, and it is somewhat remarkable that they have not adopted a labor-saving system of weights.—Chicago Times.

## Education for the Kitchen.

The friends of genuine social improvement may congratulate themselves that the progress of education is beginning to take effect upon this important department of domestic life. Cooking schools are spring-ing up in many places in this country and England, and the English are taking the lead in organizing them as a part of their national and common school system.

Of the importance, the imperative necessity of this movement, there cannot be the slightest question. Our kitchens, as is perfectly notorious, are the fortified intrenchments of ignorance, predjudice, irrational habits, rule-of-thumb and mental vacuity, and the consequence is that the Americans are liable to the reproach of suffering beyond any other people from wasteful, unpalatable, unhealthful and monotonous cookery. Considering our resources and the vaunted education and intelligence of American women, this reproach is just. Our kitchens are, in fact, almost abandoned to the control of low Irish, stupid negroes, and raw, servile menials that pour in upon us from various foreign countries. And what is worse, there is a general acqui-escence in this state of things, as if it were something fated, and relief from it hopeless and impossible. We profess to believe in the potency of education, and are applying it to all other interests and industries except only that fundamental art of the preparation and use of food to sustain life. which involves more of economy, enjoyment, health, spirits and the power of effective labor, than any other subject that is for-mally studied in the schools. We abound in female colleges and high schools, and normal schools, supported by burdensome taxes, in which everything under heaven is studied except that practical art which is a daily and vital necessity in every household in the land.— Prof. Youmans, in Popular Science Monthly for September.

Kansas has a population of 800,000.

#### An Interesting Calculation.

Mr. Spofford, the librarian of Congress, has discovered the cause of all the trouble in business. It is too much interest on borrowed money. He says that one of the causes of bankruptcy is that so few persons properly estimate the difference between high and low interest, and therefore borrow money at a ruinous rate that no legitimate business can stand. Very few, Mr. Spofford thinks, have figured on the difference be-tween six and eight per cent. One dollar, loaned for a hundred years at six per cent with the interest collected annually and added to the principal, will amount to \$840. At eight per cent it amounts to \$2,203, or nearly seven times as much. At three per cent, the usual rate in England, it amounts to \$19.25, whereas, at ten per cent, which has been a very common rate in the United States, it is \$12,809, or about seven hundred times as much. At twelve per cent it amounts to \$88,075, or more than four thousand times as much. At eighteen per cent it amounts to \$15,144,007. At twentyfour per cent, which we sometimes hear spoken of, it reaches the sum of \$2,451,799,-404. One hundred dollars borrowed at six per cent, with interest compounded annually, will amount to \$1,842 in fifty years, while the same on hundred at eight per cent will amount to \$4,680 in fifty years. One thousand dollars at ten per cent, compounded, will run up to \$117,380 in fifty years.—Exchange.

THE farmers of the West are crowding their grain to the shipping point as rapidly as possible, and during August Buffalo's receipts reached 12,299,636 bushels — 2,000,-000 bushels in excess of any preceding August. This enormous aggregate did not come from any of the lake ports in particular, but from Toledo, Detroit, Chicago and Milwaukee in almost equal proportions, and included nearly four times as much wheat as was received in 1877. This flood of grain nat-urally increases the business of the Erie canal, more boats clearing at Buffalo in August than for the same length of time in any year since 1858, while lake and canal freights have also been benefited by the end of reckless railway competition.—St. Joseph Herald.

PROF. EDISON thinks he has discovered a ery simple process of dividing the electric light into ten thousand jets, each one of which can be made of illuminating power equal to that of an ordinary gas-burner. He says the process is so simple that savans will be astonished to find how often they have stumbled over it in their theories and experiments, and yet missed it. As soon as Edison secures a patent, he proposes to give a public exhibition in New York, and he hopes to demonstrate the practicability of lighting a city by electricity at about one-tenth the cost of the gas now in use.— Champion.

HON. ALFRED GRAY, Secretary of the Board of Agriculture, estimates the wheat crop of Kansas, for 1878, at 30,000,000 bushels. Mr. Gray thinks that Kansas will rank this year as the second wheat-producing State in the Union. The rapid growth of Kansas will probably give our State the first place next year; and when Kansas once takes that position — and she certainly will in a year or two - she will keep it.

NEW YORK CITY wants an International Industrial Exhibition held there in 1889, to celebrate the centennial of Washington's inauguration.

Two million eight hundred thousand bushels of wheat - the largest export ever known - was shipped from New York week before last.

SATURDAY, OCTOBER 5, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY

#### "There's Millions in It."

The World's Exposition at Paris draws to its close, and the United States proudly walks off with the lion's share of the prizes. Uncle Sam is sounding the bugle of victory. The newspapers are proclaiming the coming of a new era in the industrial life of the world; the laurel-crowned exhibitors are preparing their fog-horns to let the patriots know who it was that did the fighting; and Europe begins to feel that there is somebody living "over there, across the waters." Undoubtedly we have accomplished much, and will accomplish more; and I am far from feeling otherwise than enthusiastic over the results myself, although drawing attention here to a weak point in our exhibit - the deficiency in the application of art to our products of industry. The French exhibibition has shown us again that the United States is far behind in art manufacture.

Now, since we have gained a position in the front ranks of manufacturing nations, it is impossible to estimate the loss which is entailed upon us through the neglect of art culture in every department of our industry. Had we, in addition to our other faculties, the artistic genius of the French, we would beat and rule the world. But through this deficiency we are reduced to mere hewers of wood and miners of metals for other nations. The bulk of our able-bodied population is engaged in manufacturing goods to be sold cheap, in producing raw materials for other people to work, or in making machinery for our competitors; while the more delicate portion have to subsist on the earnings of others, for want of employment suitable to their strength. The manufactures for which a country should especially contend, are those in which raw material counts for very little and skilled labor for much. If a ton of iron, worth less than one hundred dollars, enters Paris or Geneva or Nurnberg or La chaux de fonds, they are sure to put several hundred dollars' worth of labor on it before they will permit it to leave their town again. With us it is different. A glance at our export list will show that we export substances rather than skill,-grain, pork, bulky machinery, flatcars and car-wheels, war materials, rough cotton prints, etc.; while we import annually over one hundred million dollars' worth of articles of industrial and fine art.

The French exhibition has shown again that we are far behind in art manufacture; and it is certain that the superiority of our competing nations in this line is only owing to their education, and to the study of their business in and out of the workshop. When solid and plain work is demanded, when powerful and exact machinery has to be built, when stone is to be cut to a square or straight-edge, nobody can do it faster and better than we Americans; but when the hand has to realize the imagination of familiarity with art, and his early training in its principles, enable him to outstrip us. A Kansan writes from Paris: "When I wander through the streets, shops and public buildings, I wonder where they get all their art workmen." It is a main feature of French industry that no object is too mean for adornment. Every article that can be ornamented receives its share of attention at the hands of its maker. To such an extent is this love of art carried, that mere mechanical finish is sacrificed at tirely useless for the purposes of a telegraph. | ilar iron plate or diaphragm to that to manner possible.

very thing we pride ourselves upon is by them set at naught for the sake of aiming at higher qualities.

When we examine the facilities of the French artisan for studying the different branches of art and for the elevation of his taste, we can at once account for his superiority in this direction. In provincial as well as city schools, drawing occupies the first position among the studies. Art museums open their doors to the ambitious young artisan or artist. Special schools for woodcarvers, engravers, watch-makers, silk weavers and marble workmen, are teaching their particular branches of industrial art. Large placards upon the street-corners inform the workman of the manufacturing centers where he can get free instruction in drawing evenings and on Sunday afternoons. The government offers rich prizes to those who excel in any particular field of art; and factory owners form powerful societies for the purpose of diffusing art education among their workmen and elevating the general standard of taste. This is the secret of their superiority, and through this the French nation is enabled to export its manufactures to every part of the world, and to enjoy a general prosperity unparalleled in the history of nations, numerous disadvantages considered.

Art is not only a pleasant accomplishment, a fancy of the rich or a pastime of the idle, but it is something which concerns the welfare of millions of our citizens. It is a broad road to national wealth, and the sooner we realize this the better for us "There's millions in it!"—J. D. Walters.

# Progress of the Electric Telegraph.

When galvanism was discovered, at the beginning of the present century, and the galvanic battery invented, it was at once supposed that this new form of electricity would work a telegraph; that is, intelligible signals could be conveyed from one point to another. About 1812 Coxe, of Philadelphia, invented what he called chemical telegraph. Two wires from galvanic battery were made to approach each other in a cell of water. When the galvanic circuit was closed, the water between the opposite poles, which were near each other, was decomposed and a bubble of hydrogen rose to the surface; and the observer, seeing it, knew the current was passing and that the bubble was the signal But a telegraph of this form of course was not practicable for conveying intelligence.

In 1820 Oersted discovered that an electric current would deflect a magnetic needle, and Arago and Davy simultaneously discovered that a piece of iron, wound by a fine wire, through which a current of electricity was passed, would become magnetic so long as the current was passing, but as soon as the current ceased to pass, the iron ceased to show any of the properties of magnetism. From this fact Ampere derived the supposition that magnetism is the circulation of currents of electricity at right angles to the axis joining the two poles of the magnet. This idea produced no practical results until the brain, the Frenchman's or German's 1825, when the first simple electro-magnet was made by Sturgeon, by bending a piece of iron wire in the shape of a horseshoe, and winding fine wire around it in a helix through which the electric current was

An attempt was at once made to produce the electro-magnetic telegraph, but without success; the difficulty being that the magnetic power could not be transmitted from the battery for more than sixty feet with Sturgeon's magnet, which was of course en-

the shrine of beauty; and we find that the In 1829 Prof. Barlow published a scientific demonstration that the electro-magnetic telegraph was an impossibility, which was true in the state of knowledge regarding it at that time.

> In 1830 Prof. Henrey invented what is now known as the compound electro-magnet, and proved that the electro-magnetic telegraph was possible. In the same year he set up an electro-magnetic telegraph in Albany, using a line one mile and a half in length, on which he used polarized relays, the armatures of which were pivoted so as to vibrate between its poles as the current of electricity was reversed, thereby transmitting intelligence by sound.

> In 1831 Prof. Faraday made known his discovery of magnetic induction. In 1834 Gauss and Weber constructed a line of telegraph over 15,000 feet in length, which was operated by induced or magneto-electric currents generated in a coil of wire when it was moved up or down upon a permanent magnet, which furnished the signals for correspondence. The latter apparatus has been greatly improved by Sir William Thompson, and is now called Thompson's mirror galvanometer, which is used to detect feeble currents of electricity and for telegraphing on the Atlantic cable.

> In 1837 Steinheil discovered the fact that the earth would serve as a conductor of electricity, thus saving one wire in forming an electric circuit. Cooke invented what is known as the needle telegraph, or electromagnetic semaphore, in which the needle swings upon the face of a dial, as the vanes of the old semaphores swung on the hilltops. In 1844 Morse invented his electromagnetic telegraph, and put it in operation between Washington and Baltimore, this being the only telegraph which had proved a perfect success over long distances. The Morse system of telegraphy is now used principally all over the world, although some of the apparatus is greatly modified.

About the same time of Morse's invention, Page discovered that a musical sound accompanied the disturbance of the magnetic forces of a steel bar, when suspended so as to exhibit acoustic vibrations. In 1861 Phillip Reiss discovered that a vibrating diaphragm could be actuated by a musical tone or the human voice so as to cause the pitch and rythm to be transmitted to a distance and reproduced by electro-magnetism. In 1872 Stearns perfected a duplex system of telegraphy, whereby two communications could be simultaneously transmitted over the same wire; and in 1874 Edison invented a quadruplex system, whereby four communications could be simultaneously trans mitted over the same wire. In 1874 Gray invented a method of electrical transmission, by means of which the intensity of the tones, as well as their pitch and rythm, could be reproduced at a distance, and subsequently invented what is known as Gray's musical telephone.

In 1876 Bell invented an improvement in the apparatus for the transmission and reproduction of articulate speech, in which magneto-electric currents are generated by speaking against an iron diaphragm fixed rigidly over the pole of a permanent magnet around which there is a helix of fine wire.

Thus we trace the progress in the electric telegraph from the discovery of galvanism to the invention of the telephone. In that instrument the speaker speaks to an iron plate, and the voice of the speaker, through the vibrations of the diaphragm, is converted into electric currents; these currents, flowing over the line, excite magnetism in a corresponding magnet and vibrates a sim-

which the speaker speaks, and this plate speaks to the listener. It speaks exactly as the human voice, giving not only the voice but the quality also, so that the listener may recognize the speaker by his voice as easily as if only a few feet distant.-W. C.

Mechanical Department.—Regular instruction and practice in Carpentry, Cabi-net-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Chemistry and Physics.—The most val-uable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

nglish Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

Habits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his more. Sold at the publisher's price \$1.25 by money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

Manhattan Bank.-E. B. Purceil, Banker; Jno. W. Webb, Cashier. A general banking business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

Mathematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Club Rates.—The regular price of the Kansas Furmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the INDUSTRIALIST for \$2.75; or the Farmer and INDUSTRIALIST for \$2.25; or the American Young Folks and the INDUSTRIALIST for \$1.00.

Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of Pike's Peak," the interesting address originally delivered under the auspices of the Kansas State delivered under the auspices of the Kansas State Historical Society, and never before printed; and "THE WORLD A SCHOOL," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address GEORGE W. MARTIN, Publisher.

Drinting !- Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, as employed by the Proof-Reader; in Book-Keeping; and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical printer. Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST by the Department furnishes advanced students the requisite drill in newspaper work

The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixty-four pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case,

Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., and numbers among its contributors some &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

popular taste. Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

SATURDAY, OCTOBER 5, 1878.

One hundred and fifty-two students have been enrolled up to date.

Average temperature for the week, 67°.39; range of temperature, 50°; rainfall, .48 of an inch.

Our Fair articles are of such length as to prevent us from publishing the usual number of local

The first monthly examination was held yesterday, and we believe the grades will prove that good work has been done.

Prof. Van Deman and Prof. Failyer talk of going to Topeka next week, to attend the meeting of the Kansas Academy of Science.

The masons are pointing the new building, the carpenters are putting on the roof, and the painters are at work on the cornice.

Mr. Mann still uses crutches, but hopes to be able to lay them aside in a few days. His injury has proved more serious than Mr. Bennett's.

President Anderson will speak in Junction City this evening. Mrs. A. went up last night to meet him, and they will both remain there over Sunday.

The College farm will have some very fine Berk shire and Essex pigs for sale in a few weeks. Those desiring first choice should apply immediately.

The College library is open every day at the fifth hour, from 12:00 to 12:50. Students desiring books can obtain them by applying to Prof. Ward at that hour of the day.

Cherokee county, located in the extreme south eastern part of the State, sends seventeen students to the Agricultural College. A good representation - and good students, too.

There is in the College nursery a fine lot of pear trees that will be sold this fall and next spring. Any who may want such trees, should address Prof. H. E. VanDeman, Sup't Horticultural Department, Manhattan, Kas.

C. A. Streeter has gone into the nursery business in Clay Center.—Nationalist.

We understood that Charlie went into the "nursery" business near Milford some months ago, but had not before learned of his removal to Clay Center. Success to him in both departments of the

We are in receipt of a circular announcing that the eleventh annual meeting of the Kansas Academy of Science will be held in the State House, at Topeka, Tuesday and Wednesday, October 8th and 9th, 1878. The members of the Academy are requested to make an especial effort to be present, in order to make this the most successful meeting ever held by the Academy.

The following students have been enrolled since our last report : Atchison county-Charles Rust Cherokee - Wm. G. Hicks, Frank Tunison, James H. Jacobs, and Wm. A. Whiteside; Dickinson - J. B. Flack; Jackson - Charles A. Finley and George A. Gordon; Johnson - Louis C. Bowles; Riley -Ada A. Neusbaum, Lincoln H. Neusbaum, and J. H. Kent.

The Webster Society met Saturday evening, Sept. 28th. Messrs. Lynch and Luse were elected members, and Mr. Luse initiated. As several of the debaters were absent, the debate was postponed for one week. Extemporaneous speaking was engaged in with much interest. Mr. C. E. Wood read a very interesting selection, and Mr. C. M. Shartell declaimed. The names of Messrs. W. W. Jaquith, C. M. Records, Wirt S. Myers and Geo. F. Thompson, were then proposed for membership. The Reporter, presented by Mr. C. M. Hulett, was spicy and full of interest. By motion, the paper was changed from a weekly to a semi-monthly, and Mr. Rushmore was appointed as the next editor. The following assignments were then made: For declamation, Mr. W. P. Luse; for select reading, Mr. W. E. Rollings.

NEOSHO VALLEY DISTRICT FAIR.

The Neosho Valley District Fair, held at Neosho Falls last week, was a success. On Thursday there were over nine thousand persons on the grounds. Senator J. J. Ingalls made a speech on that day, in which he dwelt upon the topics usually discussed on such occasions. The show of live stock was good, there being about one hundred cattle on exhibition, and a superior display of sheep. Hogs and poultry were there in abundance. Horses of all breeds, from the heavy Norman draft horse to the fleet Arabian, were out in full force. The South-Eastern Kansas Horticultural Society had charge of the fruit display, which was admired by every one. Many persons visiting from eastern States seemed surprised to see such apples, peaches, pears, etc.; and some asked if this fruit actually

grew in Kansas. Owing to the fact that the apple crop is very poor in Kansas this year, the show at this fair was not so good as last year.

The corn, wheat, potatoes and other farm and garden products were very creditable even for Kansas. One beet we noticed was two feet and one inch long, and weighed about fifteen pounds.

This is considered, by good judges, the finest fair ground in the State, and some say in the West. The Society owns thirty-seven acres just across the Neosho river from town. Nearly the whole tract is covered with the very finest natural forest. It was bought of Col. Goss last year for two thousand dollars. The Colonel, who is a man of taste, owned for about twenty years and preserved this forest in its primitive condition for some such

The last day (Friday) was rainy, and cut short the pleasures of many. But the four previous days afforded good opportunity to those present to enjoy the fair. The Board on Saturday paid every premium in full and had money left. This has been done every year since the organization of the fair five years ago. Write to the Secretary, R. T. Hamm, Neosho Falls, Kansas, next year, and get a premium list and attend the best fair in

#### THE MANHATTAN FAIR.

In many respects the Riley County Fair for 1878 was merely a repetition of the fairs that have preceded it; and while in some departments it excelled last year's fair, in others it was inferior.

The entries in the various stock departments were unusually good. Of cattle, there were Shorthorns, Jerseys, Herefords, Galloways and grades; of horses, of nearly every size, age and description, there was a good representation; of swine, there were fine specimens of Berkshires, Poland-Chinas, a Jersey Red and grades; while of sheep, there was but a feeble display. It did one's eyes good to look through these various departments. They will not be excelled anywhere in the State.

Machinery Hall was filled to overflowing with wagons, buggies, plows, and all the different laborsaving machines which are now offered for sale. We saw many a farmer walking leisurely through the hall, hands in pockets, and seemingly wishing his farm was stocked with a full supply of these implements. Others were standing in groups discussing the merits of one and another of the machines exhibited. Farm machinery, if properly used and taken care of, is a great help to the farmer; but, as used and abused here in the West, it becomes a source of great expense and waste to him. As a rule, we believe that far too much money is invested in costly farm machinery -especially by poor farmers.

The display in Floral Hall was not so good as those of previous years; and yet in some respects it was very commendable. The great trouble is, people do not appreciate the good which results from a comparison of their various products; and hence of vegetables, of fruits, and of the cereals there was not so excellent or complete displays as might have been made. In commercial life competition is so great that there is little or no trouble in obtaining splendid exhibits at fairs; but in farm life this is not the case. You often hear a farmer say: "Why, I have a larger pumpkin than that;" or "My wheat or my corn far excels anything I saw at the fair!" But you never hear a manufacturer or merchant making similar statements about the displays in their departments. Farmers must learn to appreciate these annual gatherings of the fruits of the year, and must bring in to the fair from their varied resources everything of interest. Neither should the work be left to two or three, but every one ought to bring something. Then, and not until then, will strangers be able to correctly estimate the resources and capabilities of the soil, or the intelligence and industry of the people. We are not disposed to find fault with the exhibition made in Floral Hall; for, on the whole, it was praiseworthy. We have simply called attention to a condition which is indispensable to success in this or any other department.

Of the races we have nothing to say. We enjoy a good honest trot; but when a lot of gamblers and jockeys take control of a track and use it for the purpose of making all the money they can, its proper use is perverted, and we heartily condemn such proceedings. We believe that when racing at fairs is prohibited, the attention of fair managers and the people generally will be given, as it should be, to the other and more legitimate departments of a fair.

With the single exception of the disgraceful proceedings on the race-course and around the grand stand, the Manhattan fair was something to be proud of; and, in the future, we hope that this objectionable feature will either undergo a very radical change or be discontinued altogether. If this is not done, the other departments will dwindle into nothingness, the fair become simply a horse-racing and gambling affair, and respectable people will refuse to sustain or patronize it.

#### NATIONALIST ITEMS.

Prof. Ward has selected a fine lot of books for the grange library, to be kept in their hall over Fox's book store.

Arrangements are being made to induce Col. Comerford, of Colorado, to deliver a course of temperance lectures in this place.

It has been suggested that the city purchase the lots where the lake has been all summer, south of J. H. Pillsbury's, and erect a windmill and force pump, wall in the lake and make a park there, using the lake in the winter for a skating rink.

Rev. R. D. Parker, whose health has been so poor for some months, started on Monday, with his little van, for Colorado, in hopes that the pure, mountain air will restore his wonted vigor. We trust that it may, for he is a very active as well as excellent man.

On Tuesday morning a Mr. Lyon smashed in the windows to Markworth's saloon with stones. Our people do not approve of lawlessness, but the reputation of this fellow, Markworth, is so bad that the only regret we have heard expressed is that his head was not smashed instead of the windows.

The death of Geo. Pipher, (a brother of Judge Pipher) and of Mrs. Kimball, who leaves eight sons and daughters in our midst, was a surprise in spite of their advanced age. They were universally respected by all who knew them, and the bereaved relatives have the hearty sympathy of the entire community.

#### DIRECTIONS TO APPLICANTS.

TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions;

reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he will be unable to retain position if admitted.

Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as posssble.

GRADES.

Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an exami-nation of all classes is made at the close of each month. A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in the College wholly depends upon his own action. The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform in

as the average student can perfectly perform, in as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed num-ber of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath.

EXPENSES

There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instruments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male students taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the iterary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

LABOR.

Manual labor by the students may be for either of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor.-Manual labor in the reciations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. — When the Institution bulls, Joneeds labor on the Farm or elsewhere which is est bree not educational, but simply for its own profit, and Kansas.

which a student is able and willing to perform, it becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour. cents an hour.

AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn tional men have made more than expenses. As a rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery. During the year he can ordinarily acquire sufficient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. We can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course. And certainly this places an education within the reach of every determined hov. As yet we are unable to offer determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

RULES

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to

the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Department, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Education. Price, 75 cents a year. Address A. A. Stewart, Manhattan.

CALENDAR.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

TO NEW STUDENTS.

Bring the text-books you have been using. On arrival, first arrange for your boarding. A. A. Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chanel for enrellment. after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

#### LITERARY SOCIETIES.

ALPHA BETA.—Chartered, December 26th, 1870.
Meets in College building every Friday at 2 P. M.
Ladies admitted. New students cordially invited to attend. A. T. BLAIN, President. MISS JENNIE COE, Secretary.

Webster.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome.

JOHN MANN, President. W. K. ECKMAN, Secretary.

#### RAILROAD TIME-TABLE.

#### KANSAS PACIFIC RAILWAY.

PASSENGER ARRIVES. No. 2, going East...... 11:45 A. M. 

FREIGHT ARRIVES.

Going East...... 2:55 P. M., and 10:30 P. M. Going West...... 6:20 A. M., and 9:00 A. M.

Nos. 1 and 2 run daily; Nos. 3 and 9 run daily except Monday; No. 4 runs daily except Sunday. Passengers with tickets are carried on No. 9. GEO. C. WILDER, Agent.

# METEOROLOGICAL RECORD.

Condensed by Prof. Failyer from the observa-tions taken at the State Agricultural College, for the week ending October 3d, 1878. Latitude, 39°12'; Longitude, 96°40'; Height, 1,200 feet.

		Te	mpe	rature.	Bar.	100
DAY OF WEEK AND MON	тн.	Max.	Min.	Mean.	Mean Hight.	Inches of Rainfall.
Friday	.127	660	1430	1580	28.84	
Saturday	.128	77	58		28.65	
Sunday	. 29	91	68	80 .25	28.44	
Monday	30	91	72	80 .50	28.34	.48
Tuesday	. 1	74	41	61 .25	28.49	
Wednesday	2	82	42	62 .25	28.78	
Thursday	3	67	42	60 .25	28.81	

Average temperature for the week, 67°.39. Range of temperature for the week, 50.0 Rainfall for the week, .48 inches.

Bookseller and Stationer.—S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Poyntz Avenue, Manhattan. 19-3m Poyntz Avenue, Manhattan.

The Farm Department of the Agricultural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the high-est breeding. Address E, M. Shelton, Manhattan,

Board of Regents.

S. M. WOOD, President, Elmdale.
W. L. CHALLISS, Vice-President, Atchison.
JNO. A. ANDERSON, Secretary, Manhattan.
B. L. KINGSBURY, Burlington.
J. R. HALLOWELL, Columbus.
T. C. HENRY, Abilene.

E. B. Purcell, Treas. L. R. Elliott, Land Agent. M. L. Ward, Loan Commissioner. Manhattan, Kansas.

J. A. ANDERSON, President, Prof. Political Economy.
M. L. WARD, Prof. Mathematics and English.
G. H. FAILYER, Prof. Chemistry and Physics.
E. M. SHELTON, Prof. Prac. Agricul., Sup't Farm.
H. E. VAN DEMAN, Prof. Botany and Horticulture.
J. E. PLATT, Prof. Elem'y English, Mathematics.
JNO. D. WALTERS, Teacher Industrial Drawing.
HON D. J. BREWER, Lecturer on Practical Lann. HON. D. J. BREWER, Lecturer on Practical Law.
T. T. HAWKES, Sup't Mechanical Department.
A. A. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department.
MRS. M. E. CRIPPS, Sup't Sewing Department.
W. L. HOFER, Teacher of Instrumental Music.

#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must, from the nature of the case, be its main one.

FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an education; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher math-ematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as mathematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

#### FARMER'S COURSE

	FARMERS	COURSE.	
FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
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LAZPOP	POHPER.	In PraRh	Dril Dril Indu Eng Adv U.S.
Practical Geology, Polit. Eczology. Zoology. Agricul. Logic.	Botany, E Inorganic Practical Horticul., Organic, 1 Practical	Physiology. Rhetoric. Algebra. Practical Agricul. (e Physics. Industrial Drawing	the latest live latest latest
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0 0	MAJOSH	al al	Ar Strait
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Agriculture (advanced.) Mineralogy. momy, Practical Law. hemistry, Meteorology.	Gardening Chemistry.	y. Agricul. (elementary) Drawing.	in English. in Arithmetic. in Arithmetic. trial Drawing. sh Structure. Arithmetic, Book-keeping listory, Industrial Drawing
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WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. We have no doubt whatever that practical men and women, who understand what it means and what it seeks to do will fully endorse it. it seeks to do, will fully endorse it.

## WOMAN'S COURSE.

FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
Spring. Fall.	Spring. Fall.	Spring. Fall.	Spring. Fall.
1. Farm 1 2. Geolog 3. Polit'l 4. Zoolog 5. Phys'c 6. Logic.	1. Botany, E 2. Inorganic 3. Industrial 4. Horticul., 5. Organic, F 6. Household	1. Physiology 2. Rhetoric 3. Algebra. 4. English Lit 5. Physics. 6. Industrial	1. Drill in 2. Drill in 3. Industr 4. English 5. Adv'd 6. U.S. His
Farm Economy, Special Hygiene. Geology, Mineralogy. Practical Law. Polit! Economy, Practical Law. Zoology. Phys'c'l Geography, Meteorology. Logic.	Botany, Entomology. Inorganic Chemistry. Industrial Drawing. Horticul., Landscape Gardening. Organic, Household Chemistry. Household Economy.	Physiology. Rhetoric. Algebra. English Literature. Physics. Industrial Drawing.	Drill in English. Drill in Arithmetic. Industrial Drawing. English Structure. Adv'd Arith, Book-keeping. U.S. History, Industrial Drawing.

## MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge

been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies

INDUSTRIAL DEPARTMENTS Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

Dress-making. Printing. Triung.
Telegraphy.
Scroll-sawing.
Carving.
Engraving.
Photography.
Instrumental Music.

FOR FEMALE STUDENTS.

Each of these departments is conducted exactly Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them, except in the Department of Instrumental Music. Male students taking either Printing or Tolography are charged \$1 per month for the use Telegraphy are charged \$1 per month for the use of material and instruments.

#### DEPARTMENTS OF INSTRUCTION.

# DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE.

Second Year:—General principles of breeding; history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultivation of corn and roots; soils that need drainage: tion of corn and roots; soils that need drainage; how to lay out a system of drains; house drain-

age; sewerage.

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed hus-bandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; genera-advantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; ma-nures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese; manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shal-low" setting systems; general process of butter-making; packing and preserving butter.

FARM ECONOMY.

# DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

This department embraces a course of instruction in the elements of botany, structural and systematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practi-cal drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and

ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of pruning; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and useful plants; noting the species of trees worthy of culture, either for profit or ornament.

LANDSCAPE GARDENING.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are ac-companied by a practical drill in in the work of laying out and plotting grounds topographically.

## CHEMICAL DEPARTMENT.

PHYSICS

This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their compounds, are next considered in succession as to their history, properties, manufacture, and espe-cially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY. This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboratory practice.

CHEMICAL ANALYSIS.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, min-oral waters commercial compounds, etc. After eral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity; laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observations is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY. This includes the study of the laws of crystallog raphy, with the properties, forms and uses of the principal minerals of the United States. Blowprincipal inflierals of the United States. Blow-pipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY. A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composition of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of fruits, etc.

SPECIAL COURSES Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography.

ENGLISH LANGUAGE.

Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student ability. the course is to make the student skillful and intelligent in handling the machinery called lan-guage, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant attention given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the stu-

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accuracy, distinctness and volume; vowels, consonants

Letters: Form; power; rules for spelling, drill.
Words: Signification, properties, modifications,
variations, relation and dependence.
Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business letters, discussion; capitalization; syllabication; punctuation; construction and analysis of sentences; elements, uses and names; criticism of com-positions printed as written; proof reading; gram-

matical construction; superfluous words and clauses; drill in reading, speaking and penmanship.
Text-books: Webster's Academic Dictionary; Lee

& Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter
the printing class, the printing-office being the
work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS.—The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the topics included are:
Roots: What are they; their origin; their force

and value as an element of language; the manner of their growth into different parts of speech.

Stems: Their derivation; their offices and properties; their relation to other parts of words.

Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems. Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of

the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examination of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instru-ments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given operations are performed, but because they can neither add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC.

The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING Is a continuation of the above, having the same purpose and adopting such methods as the neces-sities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

ALGEBRA.
Algebra is included in the course as a preparation for the study of Surveying.

DRAWING.

The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when lay-ing a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this taste which comes from skill in using lines, this branch of mathematics is quite as important as a means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Parsynative Machanical and Computation and Computation of the product of the computation of the com Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant prac-tice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Depart-

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renthe mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical principles and their applications; and extended field practice is required in the use of the compass, level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such instruction in hygienic matters as are valuable to woman.

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household economy;" such as butter and cheese-making, dairy progregment to the Acourse of lactures is delivered. omy;" such as butter and cheese-making, darry management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See heading, "Farm Economy."

Gardening is included in Practical Horticulture. See heading, "Landscape Gardening."

Household Chemistry."

hold Chemistry."
HOUSEHOLD ECONOMY

Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without from the ability to do it. Instruction without practice can effect but little. Accordingly a kitch en laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlast-ingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry - and no more expensive.

Published every Saturday by the PRINTING DEPARTMENT

#### OF THE KANSAS STATE AGRICULTURAL COLLEGE

TERMS OF SUBSCRIPTION, 75 cents per year, postage prepaid. Ten cents per month, postage prepaid. Payment absolutely in advance! Paper stopped at expiration of subscription.

Address A. A. STEWART, Manhattan, Kas.

#### INDUSTRIAL EDUCATION.

Not the least of the things of which Kansas has a right to be proud is its magnificent educational system. At the start a wise and vigorous policy was adopted for the education of its youth; and ever since, whether in war or peace, poverty or plenty, the State has steadily developed and care-fully fostered its various educational agencies. In addition to its munificent endowment of the public schools, it has provided higher institutions for three distinct kinds of instruction, namely, for three distinct kinds of instruction, namely, normal schools for the special training of public school teachers; a university for the education of those proposing to enter the professions of law, medicine or theology; and an agricultural college for the practical education of those who will engage in any of the "industrial professions or pursuits," as distinguished from the "learned professions." The relative demand for the three forms of education is indicated by the proportion in which the citizens of Kansas follow these vocations, as shown by the last United States census. tions, as shown by the last United States census. Of every one hundred persons engaged in a vocation by which money is gained, the ratios were as

Normal education:		
Teachers	1.13=	1.13
Professional education:		
Ministers	0.43	
Lawyers	0.55	
Doctors	0.73 =	1.71
Industrial education:		
In agriculture	59.13	
In manufacturing and mechanical	14.63	
In personal service	13.89	
In trade and transportation	9.51 = 9	97.16

# AGRICULTURAL COLLEGE.

Recognizing the need for an education which should especially prepare the rising generations for an intelligent and successful practice of those for an intelligent and successful practice of those vocations which are followed by ninety-seven out of each hundred of its citizens, the first institution endowed and put in operation by the State was its Agricultural College, so named because of the fact that agriculture is, both numerically and actually, the chief of these vocations. The title, "Agricultural" College, is apt to mislead those who are not familiar with the above fact, and also with the further fact that the acts of both Congress and of Kansas provide for an "industrial," as distinguished from a "professional" education.

ENDOWMENT. ENDOWMENT.

The endowment received from the United States Government consisted of 81,601 acres of choice land, all of which had been sold at date of last report, except 31,461 acres now on the market. The proceeds from the sale of lands are invested in school bonds, and the securities in hand amounted to \$238,101.28 by last report. The annual income from this endowment is about \$20,-000, out of which all expenses of instruction are paid. The only aid received from the State is for the erection of buildings, in accordance with the conditions of the congressional grant. This is the only one of the State's institutions which is not dependent upon the tax-payer for its mainte-

## LOCATION.

It is situated one mile from Manhattan, Riley county, one hundred and twenty miles west of the Missouri River, in the heart of the finest agricultural State in America. The Kansas Pacific Railway, with its connecting lines, gives speedy communication with every quarter.

## COURSE OF STUDY.

The course of study is shaped with direct reference to giving an industrial as distinct from a professional education. It makes the pupil intelprofessional education. It makes the pupil intelligent and expert in the use of the English language; in the use of numbers as employed by the farmer, book-keeper and engineer; and in the use of lines as employed by the carpenter, painter and architect. Words, figures and lines are tools which all men use. It then gives thorough instruction and laboratorial or field drill in the following sciences as essentially useful to an the following sciences as essentially useful to an intelligent and successful farmer: Physiology, Practical Agriculture, Natural Philosophy, Bot-any, Entomology, Practical Horticulture, Land-tope Gardening, Inorganic Chemistry, Organic and Analytical Chemistry, Surveying, Geology, Mineralogy, Zoology, Meteorology, Agricultural Chemistry, Political Economy, Practical Law and Logic. It has an equally practical and effective course for the education of woman as a woman, instead of as a man, and as a worker instead of as a instead of as a man, and as a worker instead of as a butterfly. Then, it has a well-stocked farm and nursery, and well-equipped shops, for giving boys practice in farm and nursery work, and in wood and iron work, and for giving girls drill in dressmaking, printing, telegraphy, carving, engraving

#### Intellectual Supremacy.

It is a truism that energetic men as well as energetic nations must rule. All history attests this proposition. Electric shocks put men into vigorous action. Belts of intensified magnetic influences circle the earth, and nations through whose channels these circuits flow shape the energies and forces of humanity.

Only a few years ago and the common people were unfit to be the interpreters of their own desires and affections. Priests and preachers told them what to do and what to say. The common people could not be trusted with power because intelligence was a standing menace to despots and absolutism. As soon as the common people began to think, human freedom was possible. The emancipation of the mind is the freedom of the race. Every struggle in Europe against arbitrary power, however settled, has in the end lifted the people to a higher plane of thinking and living. The complex forces having always produced a resultant that tended to elevate the masses.

Unmerciful exactions in 1789 changed the whole map of Europe; blotted out nations, deposed royalty, and substituted a despotism which in turn was demolished; and, after shedding seas of human blood, loose on Europe, would only be bounded by humanity came forth stronger after a twenty-six years' contest than it ever had been before. The conflict of ideas had met in the battle-field and been settled at the can-

non's mouth. When Prussia fled across her sandy plains, unable longer to oppose the victorious legions of France, then it was that safety was found in what appeared to be her weakness. Intelligence was made the basis of national action; the future citizen was to be a thinking citizen as well as a military one. Then it was that Humboldt reconstructed the Prussian system of public instruction. Every child must be educated, was the motto. The experiment once tried, success speedily followed. An intelligent people is always a brave people, not unduly elated by victory nor oppressed by defeat. Prussian policy permeated the monarchies of all Europe. Brute force no longer shaped the destinies of nations. The arena of conflict was upon a higher plane - mind against mind. Fermentation continued. were completely ignored by their unwise Everybody was somebody, and lived for purpose - definite as to quantity and quality in the economic forces.

The play of forces, action and reaction, united Germany. Austria is vitalized, too, and must stand upon the offensive and defensive, ready to give or take. Mind there is dropping the shackles of superstition and asserting personality as the motor. France, the leader last century, has slumbered this, except at long intervals, when blind force came to the surface only to disappear with the suddenness of a lurid flash. But the fiery ordeal of 1870 aroused the nation. No longer was supremacy possible with an illiterate citizenship.

Teaching political economy and technics to the few, while omitting primary and middle education for the many, proved an egregious blunder. To remedy this defect, schools to meet the wants of all classes have able workshop, supplied with good tools, been established in all of the provinces, and a large revenue is raised annually for their maintenance. Great progress in primary instruction since the fall of the empire has changed the educational status of France, and the outlook for the future is full of promise for civil and religious freedom.

England, overflowing with sense and conservatism, is undergoing a transformation in primary and middle education excelled only by that of Japan. New activity characterizes all legislation touching the subject, whether in Parliament or among the local authorities. Even the great universities of ble.—Exchange.

Oxford and Cambridge have made magnificent provisions for the study of natural sciences and political economy and kindred subjects. Students may live as "unattached" at those universities and take elective courses as in German universities. Yet this seems incredible, almost bordering on the marvelous, to those who saw those universities at the time. Bristed wrote up Cambridge.

In whatever direction we look, the superiority of mind over brute force is apparent. The earth is a magnet, and when man takes hold with educated hands he breathes a new atmosphere. He hears and sees with multiplied powers. The world is better for his having lived in it. And so it has been with those nations whose people have been made thinking, thoughtful, liberty-loving people. Though calamities may have bowed them for a moment, and the tyrant's heel crushed them into the dust, yet misfortunes only schooled them for greater exertions, and they came forth more determined than ever to assert the nobler principles which they cherished. Volcanic action and steam hitched to the dormant Asiatics, would crystallize them into human forces that would upheave the world. The hordes that Tartary and India and China could let the ocean waves. With civilized nations, the questions of life, liberty, property and mental freedom, though of paramount im-portance, dwindle in contrast with that greater question of national existence under any or no form. Hereafter, mental forces will rule the world more and more. A universal brotherhood existing, because of fraternal and commercial relations, will be stronger than prejudices and hates. Boundaries will not be regarded as making the limits of aggression and booty. To a better education is all progress and prosperity, individual and national, due, and fraternal relations the result.—Kansas City Journal.

# Mechanical Genius.

I know at least a score of men who, though intelligent enough in other respects, do not know how to drive a nail in a workmanlike manner. As boys, they were educated with a view to practicing certain vocations or professions, and mechanical arts parents or guardians. Now, it is essential to every man — lawyer, preacher, physician, merchant — to know some of the principles of mechanical art, and how to apply them; for no one leads an industrious life without frequently seeing the use of such knowledge. There are certain mechanical rules that apply to almost every piece of work that man attempts to perform, from the folding of a paper to the matching together of two boards, and the bungling manner in which these things are generally done, shows how little idea men have of mechanism. Then, fathers, whether city men or country men, fit up a workshop for your boys. A small set of tools of the best material will not cost much, - not more than ten or twelve dollars at the most, — and they will soon return you thrice their value in good accomplished. Where there is a comfortthe boys are seldom known to leave it upon leisure days to loaf in the streets. If nothing else is given them to do, they will be manufacturing wind-mills, sleds, weathercocks, hand carts, etc.; and every hour thus employed adds to their skill as workmen. Very soon they will be able to make rainy days as profitable as others, repairing or have furnished their homes with brackets, flower-stands, step-ladders, and a hundred and one other things convenient and valua-

#### How Much Crops Drink.

From a paper on "The Conditions of Plant Growth," by Prof. R. T. Brown, in the Indiana Farmer, we clip the following interesting statements:

Much can be done to mitigate the evil of drought by proper cultivation. On a clay subsoil, with thorough under drainage, which means a perfect ventilation of the soil, and a deep cultivation, with a complete pulverization of the soil, but little danger of drought need be apprehended. But few farmers have any correct idea of the quantity of water which passes through a growing crop on a warm summer day. In a dry atmosphere and a bright sunshine, the surface of leaves send out, from their millions of pores, a constant stream of watery vapor. Careful experiments have led to the conclusion that a full crop of corn, during the season of its growth and ripening, will exhale enough water, if it were immediately condensed, to cover the field to the depth of nine inches. This is about one-fourth more than falls in the summer months in this climate. But much of the rainfall runs from the surface into the streams, and more of it goes back into the air by evaporation — how, then, can we account for the water used by our crops? If the ground is kept in a porous condition, so that the air can circulate freely through it, moisture will be deposited in it, on the same principle that dew is deposited on plants.

In this we see the necessity of deep and thorough cultivation. It is because the temperature of the air is reduced, that dew is deposited of a summer night, and the ground at ten inches from the surface is cooler than the air above; and when that air enters loose soil it is cooled down to its temperature, and is unable to hold the amount of moisture it held at its higher temperature. In this manner a supply of water in the soil can be secured even during long-continued droughts.

# Agricultural Education in France.

Since the war France has not been devoting all her energies to strengthening the military power of the country. The developments of agriculture set afoot with liberality by the late Emperor have been followed up closely by the country. In no part of Europe is agricultural education more earnestly taught than in France; in no country is a taste for agricultural pursuits more systematically developed in the young. The instructions issued to the village as well as town school-masters are: First, aim at fitting your pupils for citizens; next, imbue them with a taste for rural pursuits; above all, obliterate that growing evil, the tendency of farmers' sons to leave the country for the town. Decided success has followed these precepts in the village schools. The practice there is for the teacher to read, expound and experiment in a familiar manner with the rudiments of agricultural operations; there are special schools where the scieuce can be followed up. Successful teachers receive a bonus from the general government, and in many cases from local societies. The testing of seeds is becoming a special vocation of the school teachers, and specimens of improved fowls, pigeons and rabbits flow in upon them. The girls in the country schools are taught their departments of the life of the farm-house — the dairy, cooking, account keeping, rules of health, etc. It is from such sources that the extraordinary vitality of France is making itself felt, making very many important fixtures about and the country is becoming wealthy in the house. We know boy mechanics who men and material to an extraordinary degree.—Exchange.

Good blood, good care, good cattle, and good prices always go together.

SATURDAY, OCTOBER 12, 1878.

JNO. A. ANDERSON, Managing Editor.

ASSOCIATE EDITORS, MEMBERS OF THE FACULTY.

#### Second-Growth Fruit.

I see by the Leavenworth Times that in the yard of Hon. James F. Legate, there is this year apples and pears of a second growth, and an explanation is asked. This is not by any means a wonderful thing in horticulture. In the fall of 1874, a great many blossoms were seen on the fruit trees, and especially on the cherry. The cherry ripens its buds and drops its leaves early in the season; and the dry spell during July, August and September of that year gave the trees a rest, and the locusts having defoliated many trees made this rather unnatural state of rest still more complete. When the rains came, about the last of September, a revival of vegetation somewhat like spring caused the buds of many trees to start. Hence, we saw cherry, peach, pear, apple, plum, etc., in bloom, and shoots of stems also in a state of growth. The frost soon cut short all this. The buds which were intended for the next year's crop having in many cases developed, and no others formed to take their places, the cherry crop of 1875 was materially diminished. The gooseberry, like the cherry, being early in its development, was affected in the same way. The other kinds of fruits were not affected enough to damage the crop.

At the Neosho Valley District Fair this year, there were shown two lots of specimens of the Red June apple that were half grown, or nearly as large as hen eggs. These were developed from buds which had been prepared for next year's growth, but by some means had been forced into development this year. At the same fair were also shown Concord grapes of the second growth that were nearly ripe.

This case of Mr. Legate's is only one of the many that are occurring all over the world, and often unnoticed because of their frequency, or a lack of observation .- Prof. Van Deman.

## The Sciences in the Common Schools

Aside from the direct application of science to the pursuits of every-day life, in which they may be valued from a pecuniary standpoint; and aside from the large number of every-day occurrences, phenomena, etc., which science explains and invests with a beauty and an interest before unknown. Aside from these great advantages, it seems that there is one consideration which has not received due attention from those who are laboring to introduce the study of the elementary sciences into the public schools, viz., the reflex action of these studies upon the minds of the pupils. To make this more forcible, first ascertian the mental tastes and inclinations of our people. Note how rapidly the most silly ditties and the most offensive slang phrases are diffused through society. They consume but a season in passing from Maine to California, while really meritorious compositions, after protracted periods, are known and appreciated by only a meager minority.

literature? Go into the homes of the State. for the training of the eye than of any Flashy pictorials and sensational weeklies other organ; although, in the great indusabound. There is a surprising dearth of trial world, it, as the chief organ of percepthe more chaste periodicals and of scientific tion, is used even more constantly than the publications. In collections of books, the hand; in fact, is the pilot of the boat who more permanent form of literature, the light and frivolous take precedence. News dealers find that their sales are largely of is quickness of calculation to the merchant, these questionable periodicals and of the or quickness in the detection of a fallacy to yellow-backed trash, so much more perni- a lawyer. Hence, proficiency in the prin- 3,674,000.

cious in its influence than all the others. The records of city libraries show that, although there are plenty of historical, biographical and scientific works, as well as the better class of fiction, upon the shelves, a remarkably high per cent of the books taken and read are of the sensational and frivolous character.

To what conclusion do these facts legitimately lead? Evidently to this: That the great majority of our people occupy a very low plane. True, many may prefer this light reading simply because it seems to be a respite from more serious labors; while scientific or historical works, requiring more thought, would fail to afford the recreation desired. But, as a rule, the mental food relished and consumed by a people will indicate the mental status of that people, whether they are of refined and elevated sensibilities or the reverse. Then it may justly be concluded that a love for the low and the coarse, as shown by what one reads, is but a mirror of the mind, and that the tastes of many of our people are sadly below a reasonable standard.

All deplore that this should be the case, and many have remedies to propose. May not this great work, the elevation of the mental tastes of the masses, be facilitated by adding the elementary sciences to the curriculums of our common schools. Interest the pupil in the sciences and a new world springs up around him. He no longer runs in the old ruts. He is a new being. He has ceased to lead a blind and automatic existence. He observes, he reasons. He now reads scientific books and periodicals because they contain palatable mental food. But his reading will not be confined to science. In connection with the facts, the theories and the discoveries of which he learns, he will desire to know more of times, of places and of men; and hence, history and biography will form a part of his literature. If he reads fiction, it will be that of the best authors, for no other

It is possible for the friends of science to claim too much for it, but certainly no other influence is so efficient in giving a broad and comprehensive mind. Science is nature's language. He who learns of nature becomes impressed with the regularity, the order, the beauty, throughout all her departments. With these changes in an individual, it is impossible for him to occupy the same low plane. The baser elements in man recede in proportion as the nobler elements are developed. Place the elementary sciences in our schools and the whole system will be revolutionized. The dull, plodding routine of the present will be enlivened by the never-failing attractions of natural history. The pupils will be filled with new life and energy, and teachers, relieved of the old monotony, will perform their work with more zeal .- G. H. Failyer.

## Value of Industrial Taste.

As a rule, literary colleges have paid no attention to the art of using lines, as distinguished from a scientific study of the capabilities of lines; hence, mathematics has been chiefly employed for the education of the reasoning and not of the observing What is the character of the prevailing faculties. Less provision has been made rings orders to the latter as engineer. A trained eye is as valuable to the artisan as

ciples and practice of drawing, as used by the artisan, is time saved and money And even in those vocations earned. where no direct use is made of drawing, such as that of the job printer or milliner, the greater purity of taste and correctness of the eye, which are inseparable from such proficiency, will command a cash price in every market greater than the cost of acquisition. A workman in any trade who possesses a cultivated taste will rise more rapidly, and command higher wages, than one not so trained; because real beauty, whether of a coffee-pot or a cathedral, consists more in grace of outline than in ornamentation, costs less than ugliness, and sells

Two notable instances of the cash value of industrial taste are furnished by the experience of English and American manufacturers. Thirty years ago England found that her wares, equal in every other respect to those of France and Germany, were being driven from European markets by the greater beauty of the latter. other words, the seemingly trifling item of hereditary ugliness was so seriously affecting her great manufacturing and mercantile interests as to demand action. After due examination, the government made provision for the compulsory teaching and study of industrial drawing in all its schools; and the factories were speedily supplied with artisans who competed successfully with those of Europe. Ten years ago New England manufacturers found themselves in the same position, because of the deficient taste of workmen; and Massachusetts applied to the English government for the most competent of its teachers, to serve as state director of industrial drawing in her common schools. The result was the importation of Prof. Walter Smith, whose rare ability, sturdy courage, and square-shouldered contempt for water-colored humbug and wax-work bosh have placed the future workmen of many States under lasting obligation to Bostonian sagacity.

## Be Thorough.

Whatever you do, don't undertake too much at once; but do a little at a time, and do it thoroughly. Don't get discouraged if you do not at once reach the goal. No one ever became a learned man or a skillful workman in a day; but steady climbing up the ladder, step by step and round by round, brought success after a while. Never feel satisfied if your task is tolerably well done; half-way work never amounts to much. Try to sell a poorly-made wagon or machine of any kind, and you will find it difficult to dispose of it at any price; so with half-way work with our studies. You apply for a school to teach, or seek employment of any kind, but find when too late, that, being only half fitted to fill the position, you can only expect half pay.

If you work at carpentry, see that every joint fits perfectly; don't be satisfied with your work if a tenon does not fit perfectly. If you are learning to sew, don't overlook those two or three stitches which ruffle your work. If you practice a music lesson, don't fail to practice till every note is perfect. Be thoroughly studious; be thoroughly honest and upright; be thoroughly temperate in everything; and be a thorough Christian. Then you will be on the highway to success, and the world will be the better for your having lived in it .- W. L. Hofer.

ACCORDING to the returns made to the Department of Agriculture, two-fifths of the entire number of sheep in the United States are owned within three States: California has 6,651,000; Ohio, 3,783,000; Texas,

Parming for Profit.—Special courses in Kansas Practical Agriculture. Simple Tillage, Farm Implements, Comparative Physiology, Stock Breeding, Mixed Husbandry, Rotation of, Crops, Manures, Feeding, Buildings. Apparatus illustrating the course in Practical Agriculture.

Chemistry and Physics.—The most valuable and practical course in the West. Elementary Physics, Inorganic Chemistry, Organic Chemistry, Chemical Analysis, Agricultural Chemistry, Metallurgy, Chemical Physics, Meteorology, Pharmaceutical Chemistry, Photography and Household Chemistry.

English Language.—The direct aim of the course is to make the student skillful in handling the machinery called language, just as an engineer handles his locomotive. Drill in English, History of English, Structure of English, Study of Words, and Rhetoric. Constant practice in the class room, and, if desired, at the printer's cases.

abits of Plants.—Thorough instruction in Vegetable Physiology; tracing the development of the root, stem, bud, leaf, flower and seed. Careful study of cereal grains, grasses, and other food-plants, and of native and foreign weeds. Special attention paid to the habits and best methods of preventing or destroying insects inimical to the Kansas Farmer.

New Book.—Just issued from the press of the Kansas Publishing House, at Topeka, and written by a Kansan, who is no other than Noble L. Prentis, entitled "A Kansan Abroad." No person will read this book through without feeling that he has received at least twice the value of his money. Sold at the publisher's price, \$1.25, by Wm. Dent, Agent, Manhattan.

anhattan Bank.—E. B. Purceil, Banker; Jno. W. Webb, Cashier. A general bank-ing business transacted. Bills of Exchange is sued on all principal cities and towns of Europe. All collections have the personal, faithful and prompt attention of our attorney. Proceeds remitted promptly, at current rates of exchange, without any charge of commission.

Mathematics.—Practical, direct and thorough drill in Arithmetic, Book-Keeping, Industrial Drawing, Algebra, Geometry, Trigonometry, Surveying, Mechanics and Engineering. Work in Field, with Tape Line, Chain, Compasses, Transit and Level. The course is shaped for the paper, of the farmer, mechanic or business man benefit of the farmer, mechanic, or business man, rather than for the benefit of the astronomer.

Special for Woman.—Special lectures on Farm Economy, by Prof. Shelton, discussing the Dairy, Poultry, etc. Gardening, by Prof. Gale, treating of the vegetable, flower, commercial and ornamental. Household Chemistry, by Prof. Kedzie, consisting of the chemistry of cooking, bread, tea and coffee, butter, cheese, dyeing and coloring, bleaching, disinfectants, ventilation, etc. Special Hygiene, by Mrs. Cripps.

Club Rates.—The regular price of the Kansas Farmer, an eight-page weekly, edited and published by Major J. K. Hudson, Topeka, Kansas, is two dollars per year; and that of the American Young Folks, a sixteen-page monthly, same publisher, fifty cents a year. We we will send to publisher, fifty cents a year. We we will send to any address, for one year, the Farmer, the American Young Folks and the INDUSTRIALIST for \$2.75; or the Farmer and INDUSTRIALIST for \$2.25; or the American Young Folks and the INDUSTRIALIST for

A Kansan Abroad, By Noble L. Prentis. In this volume Mr. Prentis has collected his letters first published in the Commonwealth, under the title of "Prentis in Europe;" "Pike of PIKE'S PEAK," (the interesting address originally delivered under the auspices of the Kansas State Historical Society, and never before printed; and "THE WORLD A SCHOOL," the annual address "THE WORLD A SCHOOL," the annual address before the State Agricultural College, delivered May 25, 1875. One volume, 12mo., of 225 pages, tinted paper, full muslin binding embellished after design by Henry Worrall. Price, by mail, \$1.25. Address GEORGE W. MARTIN, Publisher

Printing!-Daily instruction and drill in the work of a First-Class Printer. The Literary Departments offer a thorough education in the construction and use of the English Language, as and in Industrial Drawing, as the best developer of that taste necessarily exercised by every good Job Printer. The Printing Department is well furnished with all the facilities for a speedy mastery of the art of Printing, and is in charge of a practical spinter. Besides regular class instruction in printrooi-Reader printer. Besides regular class instruction in printing, the weekly publication of the INDUSTRIALIST by the Department furnishes advanced students the requisite drill in newspaper work.

The Western Review of Science and Industry.—A monthly record of progress in Science, Mechanic Arts and Agriculture. Sixtyfour pages octavo. \$2.50 per annum, post paid. Single numbers, 25 cents. Edited by Theo. S. Case, Kansas City, Mo.

This journal has received the warm approval of most of the scientific periodicals of the country, such as Popular Science Monthly, Harper's Weekly, New Remedies, American Naturalist, Science Observer, &c., &c., and numbers among its contributors some of the most earnest and capable workers in the West, viz: Prof. G. C. Broadhead, State Geologist of Missouri; Prof. B. F. Mudge, State Geologist of Kansas; W. K. Kedzie, Prof. of Chemistry, State Agricultural College, Kansas; Prof. E. L. Bertroud, of the School of Mines, Colorado; nearly all of the members of the Kansas City Academy of Science, and many other well-known writers on scientific

The articles selected for its pages are taken from the very best periodicals of this country and Europe, and are chosen principally with reference to their reliability and their adaptiveness to the

popular taste.

Being the only journal of the kind in the West, it should receive the patronage and scientific contributions of western men at least, the assurance of the Editor being pledged that as rapidly as the support given him will permit, he will enlarge the REVIEW and add to its attractiveness and usefulness by suitable illustrations, and in every other manner possible.

33-44

SATURDAY, OCTOBER 12, 1878.

Number of students enrolled this term, 157.

The Board of Regents will meet Tuesday evening, November 12th.

Average temperature for the week, 61°.25; range of temperature, 49°; rainfall, .25 of an inch.

The wheat upon the College farm is growing nicely. The rain last week gave it a new start.

Col. Hallowell, one of the Regents of the College, has been nominated for Congressman-at-Large from this State.

The College farm will have some very fine Berkshire and Essex pigs for sale in a few weeks. Those desiring first choice should apply immediately.

The last number of the American Farmer, Baltimore, Md., contains Prof. VanDeman's article on the "American Ivy," published in the Industri-ALIST a few weeks ago.

The College library is open every day at the fifth hour, from 12:00 to 12:50. Students desiring books can obtain them by applying to Prof. Ward at that hour of the day.

Mr. Jesse Winchip and wife, with friends from the East, paid us a pleasant visit a few days ago. Glad to see Manhattan people take pride in showing their friends the Agricultural College.

Professor VanDeman would like one bushel of this year's peach pits, delivered at the Horticultural Building within a week or two, for which he will pay cash. Any one having them to sell please

New students continue to come in. The following are the arrivals for the past week: Cherokee county - E. C. Hicks; Davis - E. Burr; Osage -E. M. Barnes; Pottawatomie - C. J. Reed; Shawnee - James Merrill.

There is in the College nursery a fine lot of pear trees that will be sold this fall and next spring. Any who may want such trees, should address Prof. H. E. VanDeman, Sup't Horticultural Department, Manhattan, Kas.

President Anderson was in Manhattan a few hours Monday, but did not have time to come up on the Hill. He speaks in Minneapolis to-night, and next Friday night will address the people of Manhattan in Peak's Hall.

The Manhattan Choral Union has organized for another winter's work. The good music and musicians which Manhattan is able to produce are the result, in a great measure, of the efforts of this Choral Union. Students are invited to join the organization.

Our shade trees begin to exhibit a rather forlorn appearance. The leaves are dropping from the limbs and the trees are left unprotected to stand the storms of winter. How pleasant the study of the seasons and their changes! What lessons nature teaches!

The Alpha Beta and Webster literary societies are to hold a joint session in the College Chapel, on Saturday evening, October 26th. A good programme is being prepared and will be published in due time. The citizens of Manhattan are especially invited to attend.

Last week we bought one of the "Delusion" mouse-traps; and since then we have caught some ten or fifteen mice, trapping as many as three or four in one night. Perhaps this is a good place for mice, and so it seems; but that trap has also proved a good place for them. Their numbers are growing beautifully less, and the place which now knows those that are yet alive will soon know them no more forever. This trap is always loaded, and if you don't want it to go off you must turn it upside down.

The Alpha Betas met October 4th, a large number of persons being present, though the rain deterred many. The names of Messrs. Chenoweth and Wm. Rose were proposed for membership, Misses Buell and Browning were elected, and Miss Vincent initiated. The debate on the question, "Resolved, That the Republican party, as compared with any other, is not above reproach," was well conducted and decided in the negative. The Gleaner was presented and duly appreciated. The Lext question for debate is, "Would free trade be For the best interest of our country?"

Mr. Hawkes has nearly eighty students in the different classes in wood-work. We often step down and watch the boys a few moments, and invariably come away with the feeling that they mean business. Mr. Hawkes has so systematized the work that he can handle these large classes with comparative ease. Every student has a bench | comfortable.

and kit of tools, and every day these boys file into place with the utmost regularity and promptness, prepare their tools, and wait for Mr. Hawkes to assign them work. Some of them were rather awkward when they began, a month ago; but they are now making rapid advancement, and display an eagerness for instruction and practice in their chosen "industrial" that is seldom seen. On entering the room when one of these large classes is at work, one is forcibly reminded of its resemblance to some large manufactory. Additional work benches are being put up, to better accommodate the students in this department; and if the boys only continue in well doing, before the year is out they will have gained ability and skill in this industry which will be invaluable to them.

At the meeting of the Webster Society, held Saturday evening, Oct. 5th, Messrs. W. W. Jaquith, C. M. Records, Wirt S. Myers and Geo. F. Thompson were elected members, and Messrs. Myers, Throckmorton, Lynch, Allen, Light and Thompson were initiated. The question, "Resolved, That the introduction of 'free trade' into the United States is for the welfare of all its industries," was discussed by Messrs. Morrow and Hulett for the affirmative, and Messrs. Leach and Eckman for the negative. Good, sound arguments were produced upon both sides, and the question was decided in favor of the negative. Extemporaneous speaking was engaged in with much interest and profit. Mr. Luse declaimed and Mr. Rollins read a selection. The time of adjournment was fixed at ten o'clock. By motion an invitation was extended to the Alpha Beta Society to meet in a union session, in the College Chapel, Saturday evening, Oct. 26th, the exercises to be arranged by a joint committee. The question, "Resolved, That the exemption law of Kansas should be abolished." will be debated at the next meeting, by Messrs. Harvey and Throckmorton for the affirmative, and Messrs. Richardson and Lynch for the negative. Mr. Thompson was appointed for declamation, and Mr. Myers for select reading. REPORTER.

#### A SURPRISE.

The College, and Prof. Shelton in particular, received a very agreeable yet decided surprise, on last Wednesday. It seems the members of Manhattan Grange, many of whom had never made an extended visit to the College, had voted to take their families and dinners, proceed to the Institution, and spend a day in looking through the various departments. Accordingly, last Wednesday about ten o'clock, some twenty or thirty persons entered the College grounds and made known the object of their visit. They were cordially received by Profs. Ward and Shelton, their baskets deposited in the Kitchen Laboratory, and they taken through the different buildings.

The time was fully occupied in this way until one o'clock, when the visitors, and as many of the professors as could make it convenient to do so, gathered in the Kitchen Laboratory and partook of the sumptuous feast which the ladies of the Grange had prepared. All seemed at home; and this splendid repast, coupled with the social chatting on different topics, conduced to the happiness of all. About four o'clock the party started for their homes, having pleasantly spent a very pleas-

are the names of those making up the party: Worthy Master, J. N. Limbocker, wife and boy; Hon. T. St. John, wife and child; E. St. John, wife and daughter; John Warner and wife; Jesse Ingraham and wife; George Lee and wife; E. C. Persons and daughter; Mrs. Stephen Barnes, accompanied by her sister, Mrs. Beebe, of Dayton, Ohio; Mrs. Bardwell and Mrs. Dutcher.

# NATIONALIST ITEMS.

The public schools opened on Monday with a very large attendance.

Rev. Mr. Goodwin's family have moved to Ellsworth, renting their home on the Hill.

Charley Duncan has sold his farm northwest of the College — formerly owned by Jacob Winne — to Chas E. Allen, for \$3,600. It is a fine place and will just suit Mr. Allen.

Luther Benson, the most popular temperance speaker in the West, who is now in Colorado, will stop off at Manhattan, on his retarn a few weeks hence, and deliver a couple of lectures.

W. L. Hofer, teacher of music in the Kansas State Agricultural College, will give instruction on Piano, Organ, Flute, and all brass instruments; also in Harmony and Thorough Bass. Address, Box 129, Manhattan.

Col John A. Comerford, late of Colorado, who has been lecturing on temperance in Missouri, during the last summer, with good results, will commence a series of meetings in this place on Sunday evening.

The Methodist Episcopal Church has been repaired, the wood-work painted, the black walnut pews nicely oiled, the new chandeliers have been ordered, the ladies have purchased three new pul-pit chairs, quite heavy and nice, and also new carpeting for altar and aisles, using the old for The church looks really quite nice and

#### DIRECTIONS TO APPLICANTS.

TERMS OF ADMISSION.

Candidates for admission must be fourteen years of age, and pass a satisfactory examination in reading; arithmetic, through decimal fractions; and English grammar, to syntax. Classes are started at the beginning of each year in Drill in Arithmetic and Drill in English; and the pupil must have the knowledge above indicated, else he

will be unable to retain position if admitted.
Pupils will be received at any time during the year, if able to pass an additional examination upon the subjects studied by the classes which they expect to enter. But they will find it greatly to their advantage to be present at the opening of each term, or as soon thereafter as posssble.

GRADES. Both the Literary and Industrial recitations are graded daily upon a scale of 100; and an examination of all classes is made at the close of each A student not attaining an average grade of sixty is promptly dropped to a lower class, or excluded from the Institution until able to do so. The work of grading is strict and uniform in all the departments, and this process is rigorously used for sifting out incompetent and indolent pupils; thus more than accomplishing all that is designed to be effected by a "high standard of admission." Hence, the student's continuance in

the College wholly depends upon his own action.

The course is based upon the determination to make the labor required in the preparation of one industrial and three literary recitations as much as the average student can perfectly perform, in ten hours a day. We design to give the pupil the worth of the time expended at College; and, in worth of the time expended at College; and, in order thereto, he must do a full day's work with brain or hand. Only those students who can maintain a standing of ninety in each study will be allowed to take more than the prescribed number of recitations; and no one will be permitted to have less than one industrial and three literary recitations.

RELIGIOUS.

Unless otherwise directed by parents, students are required to attend chapel at 8:30 A. M. on academic days, and divine service once every Sabbath. EXPENSES.

There are no charges whatever for enrollment, attendance or instruction in the regular courses; nor are there any "contingent fees" for the repair of buildings, for the use of books or apparatus, for diplomas, or the kindred privileges usually grouped under the term "contingent." Male students are furnished instruction, the use of apparatus, instru-ments or tools, in both the literary and industrial classes marked out for them, without any charge. And the same is true of female students in the regular classes provided for them. Printing and Telegraphy are industrials primarily provided for the education of female students, and male stu-dents taking either of these are charged \$1 per month for use of instruments.

Instrumental music is a fine art or "accomplishment," rather than a mechanical art. We do not place it among our "industrials" in the same sense, or for the same purpose, that we do those provided for teaching the trades. Accordingly, a fee of \$12 per term, or seventy-five cents per week is required from female students for tuition and the use of pianos or organs.

The only charge made for material in either the iterary or industrial departments is for the chemicals used by students in laboratory practice, which are furnished at wholesale prices, and amount to but a small sum.

Furnishing an absolutely free education is as much as can be reasonably asked; and the Institution neither boards, clothes, nor supplies the student with text-books. Boarding can be obtained in private families at from \$2.75 to \$4 per week. Washing costs from seventy-five cents to one dollar per dozen. Text-books, which can be procured in Manhattan, cost from \$2 to \$5 per term.

No student need expend over \$5 per week; and many of our best pupils are living at \$1.25 per week. Students desiring to "board themselves" can do so at from \$1 to \$2 per week. In a club of four young men, renting a house, the average cost to each for the term was \$1.11 per week.

## LABOR.

ant day.

We are glad they came, hope they will come often and bring their friends with them, not forgetting their hampers of lunch. The following date of the party were set they will come of two purposes: First, to acquire skill in a given art; second, to earn money. In the first case, the labor is educational; in the second, it should be paid for by the party benefited.

Educational Labor -- Manual labor in the ations of the Industrial Departments, like mental labor in those of the Literary Departments, is purely educational and will not be remunerated. While the interest of the student will be held paramount in the direction of this labor, the practice necessary to dexterity will be required.

Remunerated Labor. — When the Institution needs labor on the Farm or elsewhere which is not educational, but simply for its own profit, and which a student is able and willing to perform, it becomes an employer instead of a teacher, and he becomes an employer instead of a teacher, and he an employe instead of a scholar. It pays for work, he works for pay. The relation between them is commercial, not educational; and both parties must act upon business principles. Hence, the College furnishes only such employment as its own interests require, and will pay according to the value of the service rendered at from seven to ten cents an hour.

AMOUNT EARNED.

It is impossible to predict how much a given person can earn, since that depends upon what he can do and what work there is to be done. Hence, it is wholly impossible for us to answer the question so often asked: "Do you think I can meet my expenses by work?" Some students make one-half their expenses, some the whole, and exceptional men have made more than expenses. rule, a faithful boy skilled in farm work can earn half his expenses on the Farm or in the Nursery During the year he can ordinarily acquire suffi-cient skill in the wood or iron shops to enable him to make articles for sale. The whole question is one for his own consideration and decision. can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of can teach all who come, but cannot absolutely promise anything more. Hitherto we have refrained from holding out strong inducements respecting the amount of labor we might have to offer; but in view of the fact that during each of the last three years we have had more to do than the students could perform, we are inclined to give greater and positive encouragement on this point. Any boy who is in dead earnest, who is

familiar with farm operations, and who can raise \$50 to start with, should be able to carry himself through the four years' course: And certainly this places an education within the reach of every determined boy. As yet we are unable to offer similar advantages to girls, not requiring labor in the College departments which they can perform.

#### RULES.

1. Behave as a true man or woman should, at all times and in all places.

2. Attend to your own business promptly, thoroughly and courteously; and vigorously let alone that of other people.

3. Penalty: "Leave!"

#### PUBLICATIONS.

The "Hand-Book," published in 1874, containing a full discussion of the educational question and the aims of the Institution, will be forwarded to any one desiring it.

THE INDUSTRIALIST, a weekly journal edited by the Faculty and published by the Printing Depart-ment, contains original and seasonable articles on the Farm, Orchard, Trades, Sciences, and Educa-tion. Price, 75 cents a year. Address A. A. Stewart, Manhattan.

Fall Term 1878.—Begins Wednesday, September 4th, and closes Wednesday, December 20th.

#### TO NEW STUDENTS.

Bring the text-books you have been using. On Stewart, Sup't Printing Department, will furnish information, either by letter or on application, concerning boarding places or rooms for rent. Report to the President at 8:30 A. M., immediately after chapel, for enrollment.

For further information apply to Jno. A. Anderson, President, Manhattan, Kansas.

#### LITERARY SOCIETIES.

ALPHA BETA .- Chartered, December 26th, 1870. Meets in College building every Friday at 2 P. M. Ladies admitted. New students cordially invited A. T. BLAIN, President. MISS JENNIE COE, Secretary.

WEBSTER.—Chartered, January, 1871. Meets in Telegraph Hall every Saturday evening. Visitors, especially students, always welcome. John Mann, President.

W. K. ECKMAN, Secretary.

#### RAILROAD TIME-TABLE.

# KANSAS PACIFIC RAILWAY.

		PASSENGER ARRIVES.			
No. 2.	going	East	11:45	A.	M.
No. 4,	going	East	3:47	A.	M.
No. 1,	going	West	4:40	P.	M.
No. 3,	going	West	4:35	A.	M.
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No. 9 (freight), going West..... Nos. 1 and 2 run daily; Nos. 3 and 9 run daily except Monday; No. 4 runs daily except Sunday. Passengers with tickets are carried on No. 9. GEO. C. WILDER, Agent.

## METEOROLOGICAL RECORD.

Condensed by Prof. Failyer from the observations taken at the State Agricultural College, for the week ending October 10th, 1878. Latitude, 39°12'; Longitude, 96°40'; Height, 1,200 feet.

		Temperature.			Bar.	of 0.
DAY OF WEEK AND MONT	TH.	Max.	Min.	Mean.	Mean Hight.	Inches of Rainfall.
Friday	4	560	520	540	28.93	.25
Saturday	.5	66	41	60 .25	28.95	
Sunday	6	69	40	57 .50	28.74	
Monday	7	76	43	62 .75	28.74	
Tuesday	8	89	61	70 .25	28.55	
Wednesday	9	74	45	61	28.72	
Thursday	10	88	55	68 .75	28.59	The F

Average temperature for the week, 61°.25. Range of temperature for the week, 49.° Rainfall for the week, .25 inches.

Telegraphy.—Four miles of line, twenty-five line instruments, and daily instruction and drill by an experienced operator.

S. Roberts. M. D.-Office south side of Poyntz Avenue, between Third and Fourth streets. Residence corner of Third and Pierre

Vocal Music.—Regular instruction and drill in the science and art of vocal music, without charge. Recitations in these classes are not reck-oned as an "industrial."

Mechanical Department.—Regular instruction and practice in Carpentry, Cabinet-Making, Turning, Scroll-Sawing, Wagon-Making, Blacksmithing and Painting.

Bookseller and Stationer,-S. M. Fox dealer in Fine Stationery, Pocket-Books Envelopes, Gold Pens, Blank Books, etc. No. 127 Poyntz Avenue, Manhattan.

Clothier. - Wm. Knostman, dealer in Ready Made Clothing, Hats, Caps, and Gents' Furnishing Goods. A well selected summer stock on hand. Opposite post-office, Manhattan.

The Farm Department of the Agricult-ural College offers for sale choice Shorthorn bulls, Jersey bulls, and Berkshire pigs of the highest breeding. Address E, M. Shelton, Manhattan,

A gricultural College Lands. - These and for sale for one-eighth cash, balance in seven equal annual payments with ten per cent interest,

Board of Regents.

S. M. WOOD, President, Elmdale.
W. L. CHALLISS, Vice-President, Atchison.
JNO. A. ANDERSON, Secretary, Manhattan.
B. L. KINGSBURY, Burlington.
J. R. HALLOWELL, Columbus.
T. C. HENRY, Abilene.

E. B. PURCELL, Treas. L. R. ELLIOTT, Land Agent. M. L. WARD, Loan Commissioner. Manhattan, Kansas.

FACULTY. J. A. ANDERSON, President, Prof. Political Economy. M. L. WARD, Prof. Mathematics and English. G. H. FAILYER, Prof. Chemistry and Physics.
E. M. SHELTON, Prof. Prac. Agricul., Sup't Farm.
H. E. VAN DEMAN, Prof. Botany and Horticulture.
J. E. PLATT, Prof. Elem'y English, Mathematics.
JNO. D. WALTERS, Teacher Industrial Drawing.
HON. D. J. BREWER, Lecturer on Practical Law. T. T. HAWKES, Sup't Mechanical Department. W. C. STEWART, Sup't Printing Department.
W. C. STEWART, Sup't Telegraph Department,
MRS. M. E. CRIPPS, Sup't Sewing Department.
W. L. HOFER, Teacher of Instrumental Music.

#### INDUSTRIAL EDUCATION.

The real value of an education to the student depends upon two things: First, the practical worth of the knowledge taught; and, second, the degree in which he makes it his own. Hence, the ability of any institution to give a practical education depends upon the kind and aim of the knowledge it teaches, and upon the thoroughness of the instruction therein. The State Agricultural College was directly endowed by Congress, and is guided by the State, for the specific purpose of furnishing to the industrial classes of Kansas a "practical" education, that is, "one fit for use." As its name indicates, and as the statistics of the industries of the State require, its chief work must be that of giving a useful and usable education to those who will engage in farming; and, therefore, the Farmer's Course must from the nature of the case, be its main one.

FARMER'S EDUCATION.

Words and figures are merely instruments with which to record ideas. They are not themselves ideas, nor should they be made the chief end of an education. As a wagon is necessary to haul grain, so are they a necessary part of an educa-tion; but as the wagon is not the grain, so they are not the knowledge which the farmer converts into money. Hence, the classics and higher mathematics are not taught. But it will be noticed in the following course that so soon as the pupil acquires working skill in the use of the English language as a tool, and of figures and lines as math-ematical tools, those arts and sciences which present knowledge that has a cash value to the farmer are taught as rapidly as their importance and thorough acquisition will permit. Studies numbered (1) and (4) in the second, third and fourth years are the spine of the course, to which the others are as ribs and muscle.

## FARMER'S COURSE.

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WOMAN'S EDUCATION.

Nearly one-half of our students are females, and the Woman's Course is prepared expressly for their liberal and practical education. have no doubt whatever that practical men and women, who understand what it means and what it seeks to do, will fully endorse it.

## WOMAN'S COURSE.

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FOURTH YE'R	THIRD YE'R.	SEC'ND YE'R	FIRST YEAR.
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# MECHANIC'S EDUCATION.

Because of the adaptedness of the leading course to the wants of the intelligent mechanic, it has been found practically unnecessary to diverge from the Farmer's Course. Additional studies, specially adapted to the mechanic's use, will be furnished in a Post-Graduate's Course.

If it be urged that the distinctively agricultural knowledge taught in the Farmer's Course is not directly valuable to the mechanic, we reply that, admitting the point for the purpose of argument, yet: 1. This knowledge is of more practical value to the mechanic than is the Latin, Greek, or a half dozen other things embraced in the usual course preparatory to the professions: 2. That the great preparatory to the professions; 2. That the great majority of Kansas mechanics will also be more

or less engaged in agriculture; 3. That those studies in the course which are directly valuable to the mechanic, together with the shop facilities, offer a better mechanic's education than can be elsewhere found west of the Alleghanies.

INDUSTRIAL DEPARTMENTS. Having knowledge in the head is one thing; ability to use it with the tongue, fingers or feet is quite another thing. Both are vital to success in practical life. A man might thoroughly understand the theoretical principles of carpentry, and yet, not having used the tools, be wholly unable to earn carpenter's wages. So in all other vocations. Accordingly, instruction is given in the following well-equipped Industrial Departments, and every student is required to recite in some one of them, as selected by the pupil or parent:

FOR MALE STUDENTS. The Farm. The Nursery. Carpentry. Cabinet-making. Turning.
Wagon-making.
Painting.
Blacksmithing.

FOR FEMALE STUDENTS. Dress-making.
Printing.
Telegraphy.
Scroll-sawing. Carving. Engraving. Photography. Instrumental Music.

Each of these departments is conducted exactly as in daily life, and aims to give precisely the drill received by an apprentice. No charge is made, either for tuition or material, from male students taking the Industrials provided for them; nor from female students taking the ones provided for them. them, except in the Department of Instrumental Music. Male students taking either Printing or Telegraphy are charged \$1 per month for the use of material and instruments.

#### DEPARTMENTS OF INSTRUCTION.

#### DEPARTMENT OF AGRICULTURE.

PRACTICAL AGRICULTURE. Second Year: - General principles of breeding; history and characteristics of breeds; adaptation of different breeds for special purposes and localities; implements of simple tillage; mechanical principles involved in their construction; action of the plow upon soil and subsoil; principles of draught; influence of different adjustments upon draught; use of the dynamometer; value of hoed crops in a system of husbandry; the cultiva-tion of corn and roots; soils that need drainage; how to lay out, a system of drains; house drainage; sewerage.

Fourth Year: General view of agriculture, an cient and modern; agricultural progress of the last century; relative advantages of mixed husbandry and special farming; the selection and arrangement of the farm with reference to the system to be pursued; rotation of crops; generaadvantages of a rotation; the best rotation with reference to disposition of labor, production of manure, and extermination of weeds; pasturage and production of grain and forage crops; manures, how best housed and applied; composting manures; commercial fertilizers; systems of feeding; stall feeding; steaming food; soiling; experiments in feeding; farm buildings; farmhouses; barns.

FARM ECONOMY. Woman's Course, Fourth Year: Dairy products as human food; influences affecting character of milk; manufacture of condensed milk; the factory system and household plan of cheese-making; treatment of rennet; general process of cheese manufacture; subsequent treatment of cheese; butter-making; creameries; "deep" and "shal-low" setting systems; general process of butter-

# DEPARTMENT OF BOTANY AND PRACTICAL HORTICULTURE.

making; packing and preserving butter.

This department embraces a course of instruc-tion in the elements of botany, structural and systematic, with a constant attention to the practical application of botany to the farm, orchard, garden, nursery and forest; also a course of lectures on Landscape Gardening. The instruction is mainly given by lectures, accompanied by regular practi-cal drill in all the work of the fruit, vegetable and flower gardens, nursery, orchard, vineyard and ornamental grounds.

The lectures in Practical Horticulture embrace the following and kindred subjects: The relation of atmospheric motion, moisture and temperature to horticulture; seeds, the means of collecting and preserving; propagation, by seeds, cuttings, layers, suckers, grafting, budding; care of young plants; improvement of varieties; management of commercial and farm nursery; modes of prunor commercial and farm nursery; modes of prin-ing; the orchard; fruit suitable for orchard and garden culture; the flower, vegetable and fruit garden; importance and mode of forest culture; shelter belts and their influence; weeds and use-ful plants; noting the species of trees worthy of culture either for profit or organization. culture, either for profit or ornament.

LANDSCAPE GARDENING.

The lectures on Landscape Gardening not only unfold the accepted principles of the art, but at the same time give special attention to such applications of the art as may be made universally available in laying out and improvement of farms and the homes of the people. These lectures are acthe homes of the people. These lectures are accompanied by a practical drill in in the work of laying out and plotting grounds topographically.

## CHEMICAL DEPARTMENT.

PHYSICS.

This includes a full consideration of the laws of mechanics, of liquids, gases and vapors, weights and measures, and specific gravity, followed by experimental study in the Physical Laboratory of the laws of heat, light, with spectrum analysis, electricity and magnetism, and the relation of these forces to plant and animal life. Text-book,

INORGANIC CHEMISTRY.

This course is opened with a careful study of chemical forces and the laws governing chemical combination. The elements, with their com-pounds, are next considered in succession as to their history, properties, manufacture, and especially with regard to their uses on the farm and in the arts. These lectures are accompanied by an extended course of laboratory practice in which each 'student performs every experiment with his own hands. Text-book, Eliot & Storer.

ORGANIC CHEMISTRY.

This comprises a thorough study of the chemistry of the organic compounds, the composition of plants and of the various compounds derived from them. Constantly accompanied by laboratory practice.

In this course each student is furnished his stand in the Qualitative Laboratory, completely furnished with apparatus and chemicals for his own use. He here performs analyses of farm soils, plant ash, commercial manures, ores, min-eral waters, commercial compounds, etc. After completing this course, he enters, if he desires, the Quantitative Laboratory, where he pursues a full course in quantitative analysis. Text-book, Kedzie's Manual.

AGRICULTURAL CHEMISTRY.

This includes a thorough consideration of the application of chemical principles to the economy of the farm; the origin and formation of soils; the classification and composition of soils; the analysis of soils and their adaptation to purposes of production; the composition and use of manures; composting; chemistry of farm operations, such as plowing, fallowing, draining, etc. Textbook, Johnson's "How Crops Feed."

METEOROLOGY.

Embracing the composition of the atmosphere atmospheric pressure; temperature and humidity laws of storms; rain, snow and atmospheric electricity. A full course in meteorological observa-tions is taken under direction of the Signal Service. Text-book, Loomis' Meteorology.

MINERALOGY.

This includes the study of the laws of crystallog-raphy, with the properties, forms and uses of the principal minerals of the United States. Blowpipe analysis forms a very important part of the course, each student being required to name and identify a large series of minerals. Text-book, Dana's Mineralogy.

HOUSEHOLD CHEMISTRY.

A course of lectures on this subject is yearly delivered to a class of young ladies. The course embraces the chemistry of cooking; the composi-tion of food; bread; tea, chocolate and coffee; butter and milk; ripening and preservation of

SPECIAL COURSES

Are constantly in progress in Assaying, Pharmaceutical Chemistry and Photography. ENGLISH LANGUAGE.

Words are simply tools used to express ideas; and, since the vast majority of our communications are made by the employment of spoken or written words, skill in using them is as profitable to the industrialist as dexterity with the needle is profitable to the seamstress. The direct aim of the course is to make the student skillful and intelligent in handling the machinery called language just as an engineer handles a locomotive. guage, just as an engineer handles a locomotive; and no drill will be omitted, or effort spared, to gain this end. Apart from the course itself, which is far more practical and complete than that usually found in literary colleges, the constant atten-tion given this subject by all the departments, and especially the practice required in the printing classes, affords superior advantages to the stu-

DRILL IN ENGLISH.

"As grammar was made after language, so ought it to be taught after language."—Herbert Spencer. Drill in English embraces the following topics: Sounds of the language; drill in producing the vocal, sub-vocal and aspirate elements with accu-

racy, distinctness and volume; vowels, consonants.

Letters: Form; power; rules for spelling, drill.

Words: Signification, properties, modifications, variations, relation and dependence.

Sentences: Drill in statement of ideas; description, clearness, terseness, vigor; business ters, discussion; capitalization; syllabicat syllabication punctuation; construction and analysis of senten-ces; elements, uses and names; criticism of compositions printed as written; proof reading; grammatical construction; superfluous words and clauses; drill in reading, speaking and penman-

Text-books: Webster's Academic Dictionary; Lee & Hadley's Advanced Lessons in Language.
Pupils deficient in spelling, etc., should enter the printing class, the printing-office being the work-shop of language.

STRUCTURE OF ENGLISH.

ELEMENTS OF WORDS .- The end aimed at in this study is to learn everything about words which will aid in their effective use. Among the

topics included are:
Roots: What are they; their origin; their force and value as an element of language; the manner of their growth into different parts of speech.

Stems: Their derivation; their offices and prop-

erties; their relation to other parts of words. Prefixes and Suffixes: The several sources whence derived; the relation of their force or significance to those sources; explanation of the laws and principles governing their use along with stems.

Compounds: Their value; their properties and uses; the laws governing their formation.

Synonyms: Definitions; causes of their abundance in English; the principles to be observed in choosing among them, to express a thought.

Criticism: This constitutes a prominent part of the exercises of the pupil through his whole course in the study of English. It not only diversifies and enlivens the class-room exercise, but reduces to practice the principles of the structure of the language. By this means, the student acquires not only a knowledge of English, but readiness and accuracy in speaking or writing it. The exercises in criticism embrace not only examina-

tion of selected matter, but original composition.

ELEMENTS OF SENTENCES.—The purpose in view in studying this subject is not to traverse the ground gone over in the study of grammar, but to fix in the mind of the student a clear understanding and remembrance of names, the properties and offices of the several classes of words entering into an English sentence, by showing him the reason of things; to make more simple, as well as interesting and practically useful, a study otherwise "dry and unprofitable" in many cases, by explaining the reason of the verbal forms and the process the miles and market being to the state of the second market being the reason of the verbal forms and the process the miles and market being the reason of the verbal forms and the process the miles and market being the reason of the verbal forms and the process the miles and market being the reason of the verbal forms and the process the miles and market being the reason of the verbal forms and the process the miles and market being the reason of the verbal forms and the process the miles and the changes, the rules and maxims he is to remember and observe in his use of language. In the same manner he is conducted through a study of the mutual relations and dependencies of the several elements making up a sentence.

MATHEMATICAL DEPARTMENT.

Figures and lines, like words, are only instru-ments with which to convey ideas, or perform operations that cannot be easily done without them. The arithmetical principles used in business are few and simple; but accuracy and rapidity in computation are only gained by practice. College graduates often fail to retain clerkships,

not because they do not know why given operations are performed, but because they can nei-ther add, multiply or divide with that habitual correctness which renders their work reliable.

DRILL IN ARITHMETIC. The chief design of this study is to make the student expert in the use of numbers, as employed by the industrialist for profit. The occupation of a successful farmer demands the application of every principle of practical arithmetic, and is taken as a starting point, rather than that of an abstract system. Beginning with a simple cash account, book-keeping is gradually developed to the full extent of its real utility. The areas of fields, expense of crops, construction of houses, sales of produce, and investment of capital, involve all the fundamental operations, and those of profit and loss, commission, taxes, insurance, exchange and stocks. Following this line, the student, so far from hammering away at "pure" science draws from the mathematical store-house what he needs, and sees why he needs it. Accuracy of calculation and posting, rather than a mere comprehension of the principles, is aimed at. Besides the recitation-room drill in business forms, practice in the field is also given. Estimating the number of cords in a pile of wood said to be 100x4x4 feet is one thing; measuring a pile of wood through which any number of cats may be harmlessly thrown, and in which four-feet sticks are the exception, is quite another and more difficult

ARITHMETIC AND BOOK-KEEPING Is a continuation of the above, having the same purpose and adopting such methods as the neces-sities of the class indicate. Thorough instruction in the principles and forms of business law is given. It will be seen that this method of teaching book-keeping, besides ensuring arithmetical practice, develops practical skill in that important

Algebra is included in the course as a preparation for the study of Surveying.

DRAWING. The practical value of Industrial Drawing can hardly be overestimated, first, because its study is the best drill for the development of the perceptive faculties, which are the ones most employed in daily life; and, second, because the working classes make a far greater use of lines than they do of figures. A farmer follows a line when laydo of figures. A farmer follows a line when laying a straight furrow; the carpenter uses the square and rule twenty times as often as he does figures; and a woman in cutting a pattern, or deciding that one bonnet is prettier than another, does so by the line or "form." So that either in its direct application, or in the exercise of that taste which comes from skill in using lines, this branch of mathematics is quite as important as a branch of mathematics is quite as important as a means of "mental discipline" as is the branch of means of "mental discipline" as is the branch of computation, and is of far greater daily use. The admiral system of Prof. Walter Smith, Art Director of Massachusetts, is thoroughly followed through the grades of Free-hand, Geometrical, Object, Model, Perspective, Mechanical and Topographical Drawing, during the terms indicated by the Course of Study. In addition, constant practice in the application of lines to metal and wood is furnished in the Blacksmith, Carpenter, Turning, Scroll-sawing, Carving, Engraving and Printing shops, and to fabrics in the Sewing Department.

PRACTICAL GEOMETRY.

Not one farmer in a thousand ever uses the transit in surveying his land, the testimony of the county surveyor being decisive in court; but every farmer makes countless applications of lines and angles in laying off fields, roads, gardens, planning houses, determining levels, etc. The object of Practical Geometry is to teach the properties and uses of angles, and to make the student will lim the application of lines to the field by skillful in the application of lines to the field by the use of such simple instruments as are always within reach, or within his ability to construct; and accurate in the transferring of plans to the grounds, board or block.

PRACTICAL SURVEYING.

The drill in the use of figures and lines given by the mathematical course as above indicated, renders the mastery of surveying an easy task. There is no calculation made or formula used by the working engineer which cannot be readily understood and performed by a skillful arithmetician after proper instruction. The hand-book of the engineer is accordingly supplemented with such special guidance as is found mecessary for a full comprehension of the mathematical prin-ciples and their applications; and extended field level, transit and theodlite.

STUDIES SPECIAL TO WOMAN. Besides the studies already indicated, attention is called to the following:

SPECIAL HYGIENE.

As shown in the course, one term is devoted to the study of Physiology, from the text-book of Dr. J. C. Dalton. This is followed in the fourth year by a course of lectures to young ladies by Mrs. Cripps on the subject of Hygiene, embracing such interestion in hygienic matters as are valuable to instruction in hygienic matters as are valuable to

FARM ECONOMY considers those affairs of the farm which usually come under the supervision of the farmer's wife or daughter, and which are not included in "gardening" or "household econ-omy;" such as butter and cheese-making, dairy management, etc. A course of lectures is delivered by the Professor of Practical Agriculture. See

heading, "Farm Economy."

Gardening is included in Practical Horticulture. See heading, "Landscape Gardening."

Household Chemistry. See heading, "House-

hold Chemistry."

HOUSEHOLD ECONOMY
Follows Household Chemistry and consists of lec-Follows Household Chemistry and consists of lectures by Mrs. Cripps in the art of house-keeping, embracing cookery, domestic management, and kindred topics. Many elderly gentlemen sufficiently know, and more young gentlemen will duly discover, that systematic knowledge of how cooking ought to be done is luminously different from the ability to do it. Instruction without practice can effect but little. Accordingly a kitchen laboratory has been completely furnished, and affords every facility for drill in the art of cooking. This drill chiefly differs from that of a kitchen in the respect that after a girl has learned to wash dishes or pare pototoes she is not kept everlastingly at either. After full trial we have found it just as feasible to give this practice, with profit and pleasure to the pupil, as it is to give laboratory practice in chemistry — and no more expensive. practice in chemistry - and no more expensive.